National Park Service
U.S. Department of the Interior

Joshua Tree National Park

Backcounty and Wilderness Management Plan

An Amendment to the 1995 General Management Plan

Record of Decision: January, 2000

On October 31, 1994, Public Law 103-433 added 234,000 acres to Joshua Tree National Monument and changed its status from national monument to national park. The land that was added by the legislation comprises primarily backcountry and wilderness areas. In 1995, the National Park Service adopted a general management plan to administer the developed zone of the former national monument. This amendment to the General Management Plan accomplishes two objectives deferred by that plan: management of the natural zone on former national monument land and management of all the land added to the park in 1994.

In November 1997, the National Park Service released a draft amendment to Joshua Tree National Park's General Management Plan to serve as the Backcountry and Wilderness Management Plan for the park. This draft amendment offered a proposed action and three alternatives for management of Joshua Tree National Park's backcountry and wilderness. The proposed action (alternative A) would minimize disturbance to resources, ensure their preservation, and offer the public a wide variety of recreational opportunities. Alternative B (no action) would continue the status quo. Alternative C (maximum protection) would rigorously protect resources and restrict visitor use of the backcountry. Alternative D (minimum requirements) would impose no new restrictions; the land added in 1994 would be managed for its historic use with only illegal activities prohibited. The affected environment was described, and the impacts of the four alternatives were evaluated for impacts to natural resources, cultural resources, and visitor enjoyment.

After a lengthy public review and comment process, thorough review of comments, and consideration of the Joshua Tree National Park Advisory Commission's input, the National Park Service determined that changes to the proposed action warranted issuing a supplement to the draft amendment. The new document supplemented the original and updated the planning process; discussed the new proposed action (alternative E) and the environmental consequences of implementing the new alternative; and contained summary tables that compared the actions and consequences of the five alternatives.

All five alternatives address issues of public concern. Management prescriptions for the protection and use of backcountry and wilderness areas, trails, roads, climbing, camping, closures, group size limits, artificial water sources, and desert tortoise protection are described for each alternative.

PLAN SUMMARY

The act of November 10, 1978, (PL 95-625) codified at 16 United States Code (USC) 1a-7(b) requires that the National Park Service prepare a general management plan to provide for the preservation and public enjoyment of each area of the national park system. In 1995, the National Park Service adopted a new general management plan for the administration of Joshua Tree National Monument. On October 31, 1994, the California Desert Protection Act redesignated Joshua Tree National Monument as a national park and added approximately 234,000 acres of Federal and nonFederal land to the area.

The 1995 General Management Plan prescribed management zoning of the national monument, but did not specify prescriptions for managing the natural zone in the monument or the 234,000 acres that were added in 1994. Instead, the General Management Plan stated that the National Park Service would develop a wilderness and backcountry management plan for the natural zone of the monument that would also address the new areas of the park.

This General Management Plan amendment, the Backcountry and Wilderness Management Plan, accomplishes the two objectives deferred by the 1995 General Management Plan:

- management of the natural zone in the former national monument
- management of all the land added to the park in 1994

The National Park Service, in fulfillment of requirements of the National Environmental Policy Act (NEPA) and its regulations at 40 Code of Federal Regulations (CFR) 1503.1, released a draft General Management Plan Amendment and Supplemental Environmental Impact Statement (EIS) for public review and comment in November 1997. After the lengthy public review and comment process, thorough review of the comments and consideration of the Joshua Tree National Park Advisory Commission's input, the National Park Service determined that changes to the draft proposed action warranted issuing a supplement to the draft General Management Plan Amendment. The Supplement to the draft General Management Plan Amendment contained the National Park Service's new proposed action (alternative E) and was released for public review and comment in November 1998.

Management of all the land added in 1994 and of the land in the natural zone of the national monument would be enhanced by the adoption of the new proposed action (alternative E). This Backcountry and Wilderness Management Plan would protect natural and cultural resources by permitting visitor enjoyment in ways that would reduce impair-ment of cultural resources, vegetation, soils, geologic resources, and wildlife. The new proposed action would enhance visitor enjoyment by ensuring a wide range of visitor experiences from 4-wheel-drive vehicle touring on rough unpaved roads to hiking in some of the most primitive wilderness in Southern California.

This Backcountry and Wilderness Management Plan presents the five alternatives that were considered for the management of nine significant actions that affect the quality of the human environment. Those actions (not in order of significance) include:

1. designation of a trail system with prescriptions for certain uses: foot, bicycle, equestrian;
2. designation of unpaved roads in lands added to the park in 1994 as part of the developed zone and thus open to motor vehicle use;
3. designation of management prescriptions for recreational climbing throughout the park;
4. designation of locations in the park where roadside auto camping may or may not be permitted;
5. analysis of major artificial water sources installed for wildlife in designated wilderness and if such sources should be removed or maintained;
6. adoption of areas limited to day use only or closed to public access seasonally or permanently;
7. establishment of group size limits for overnight stays in the backcountry and wilderness;
8. implementation of the Department of the Interior's Desert Tortoise Recovery Plan; and
9. analysis of proposed additions to wilderness.

TRAILS

New Proposed Action (alternative E)

The National Park Service would designate a trail system. Bicycle use would be allowed on certain designated trails in nonwilderness, and horse use would be limited to designated trails and corridors. Foot use would be permitted on all designated trails, in all designated corridors, and cross-country. An option exists, at the discretion of the Superintendent, to study the use of llamas in the park with the protection of resources and consistency with the National Park Service

mission being the primary concerns. Access to remote backcountry and wilderness areas, where parking at a backcountry self-registration board is not practical or required, would include Pinto Basin and the Coxcomb, Pinto, Eagle, Little San Bernardino, and Cottonwood mountains. A reroute of .67 miles would move the .5-mile section of the Berdoo/Thermal Canyon bicycle trail that currently lies in wilderness to the backcountry transition subzone.

Trails not designated as part of the trail system would be restored to a natural condition. No new trail requests from the public would be considered until the designated trails are inventoried, developed, and monitored for several years.

Proposed Action (alternative A)

The National Park Service would designate a trail system. Bicycle use would be allowed on certain designated trails in nonwilderness, and horse use would be limited to designated trails and corridors. Foot use would be permitted on all designated trails and in all designated corridors, as well as cross-country.

No Action (alternative B)

A series of undesignated trails, some constructed but most established by hikers and horses, would continue to be used. The National Park Service would not maintain the trails, designate access points, or erect signs. All undesignated trails and routes would continue to be open. No trails are currently open to bicyclists, and none would be added.

Maximum Protection (alternative C)

All but a few trails would be closed. Open trails would be maintained, access points would be designated, and signs would be posted. Only designated trails would be open for hikers and equestrians. No trails would be open to bicyclists.

Minimum Protection (alternative D)

A series of undesignated trails, some constructed but most established by hikers and horses, would remain open. The trails would not be maintained, and access points would not be designated, but all trails would be open to all uses. Bicyclists could use all trails in nonwilderness.

ROAD SYSTEM

New Proposed Action (alternative E) - The Plan

The new proposed action would designate a total of 37.7 miles of Berdoo Canyon Road, Pinkham Canyon Road, Snow Cloud Mine Spur, Thermal Canyon Road, a connecting link from Pinkham Canyon Road to Thermal Canyon Road, Black Eagle Mine Road, Grubstake Canyon Road, Powerline Roads (east and west), west Eagle Mountain aqueduct access road as part of the developed zone and open to public motor vehicle use. All other roads and dirt tracks not designated as open would be closed to vehicle access and would be reclaimed as part of the natural zone.

This plan does not address roads, tracks, and jeep trails in designated wilderness or potential wilderness. Such roads or tracks are automatically closed to vehicle use by the Wilderness Act (16 USC 1131 et seq.).

A short section of monument road that was not mentioned in the General Management Plan, a 0.5-mile portion of the Gold Park Road, provides access to land administered by the Bureau of Land Management (BLM) in the Gold Park and Music Valley areas. The road has remained open to public motor vehicle use and would be designated as part of the developed zone and open to public use.

Holders of valid rights in the park might be able to operate motor vehicles on roads that are closed to the public, including roads in wilderness. Such users would first obtain National Park Service authorization as described in appendix 10 of the Land Protection Plan of November 1996.

Proposed Action (alternative A)

The proposed action would designate a total of 36.9 miles of Berdoo Canyon Road, Pinkham Canyon Road, Thermal Canyon Road, a connecting link from Pinkham Canyon Road to Thermal Canyon Road, Black Eagle Mine Road, Grubstake Canyon Road, Powerline Roads (east and west), west Eagle Mountain aqueduct access road as part of the developed zone and open to public motor vehicle use.

All other dirt tracks or roads in the nonwilderness additions to the park would be closed to public motor vehicle use. This plan does not address roads, tracks, and jeep trails in designated wilderness or potential wilderness. Such roads or tracks are automatically closed by the Wilderness Act (16 USC 1131 et seq.).

A short section of monument road that was not mentioned in the General Management Plan, a 0.5-mile portion of the Gold Park Road, provides access to land administered by the BLM in the Gold Park and Music Valley areas. The road has remained open to public motor vehicle use and would be designated as part of the developed zone and open to public use.

Holders of valid rights in the park might be able to operate motor vehicles on roads that are closed to the public, including roads in wilderness. Such users would first obtain National Park Service authorization as described in appendix 10 of the Land Protection Plan of November 1996.

No Action (alternative B)
Motor vehicles would continue to be allowed on all driveable roads in the nonwilderness additions to the park. On former national monument roads, vehicles would continue to be confined to designated roads. In addition to the roads in the proposed action alternative, the roads that would be open under this alternative would be: Fargo Canyon Road (2 miles), Rockhouse Canyon Road (7.4 miles), Snow Cloud Mine Spur (0.8 miles) from the Pinkham Canyon Road to the old Snow Cloud Mine area.

Maximum Protection (alternative C)
All roads in the nonwilderness additions to the park would be closed to motor vehicles. The roads could be designated for use by hikers or stock animals only. All roads listed as open in alternatives A and B would be closed.

Minimum Requirements (alternative D)
All roads in the nonwilderness additions to the park would be designated as open. In addition to the roads listed in the new proposed action alter-native, the roads that would be open would include Fargo Canyon Road (2 miles) and Rock-house Canyon Road (7.4 miles).

CLIMBING MANAGEMENT

New Proposed Action (alternative E)
A wide variety of climbing experiences would be maintained in the park through a comprehensive climbing management plan. A climbing committee would function as a subcommittee of the Joshua Tree National Park Advisory Commission and be chaired by a commissioner and be comprised of representatives of the climbing community, conservation organizations, and other individuals.

The National Park Service would formalize a process to inventory social trails, designate the minimum number of trails needed to access climbing areas, place physical barriers and signs to protect sensitive resources, etc. The National Park Service would survey the base of popular climbs to evaluate any restoration, protection, or additional management actions that may be needed. The National Park Service, with the Climbing Committee, would work with climbers to coordinate voluntary chalk clean-ups and to develop protocols for using chalk. Replacement of unsafe existing fixed anchors would be allowed throughout the park. Replacement and new fixed anchors, hangers, and chains would be neutral or rock-colored.

Replacement of existing fixed anchors would be accomplished in a manner that removes the old fixed anchor with minimum damage to the rock resource. Power drills could be used in the developed zone and the backcountry transition subzone with a permit.

Placement of fixed anchors in the developed zone and backcountry transition subzone would not require a permit, but a monitored process would be established to provide guidance and management oversight. The monitored process would be developed with the assistance of the Climbing Committee. A cap would be placed on the number of new climbing routes using fixed anchors (bolts).

A park-wide survey of existing routes with fixed anchors would assess impacts to resources and visitor experiences. Management prescriptions could consist of the relocation of specific fixed anchors and approach and descent routes, and/or permanent or temporary closures. Fixed anchors in wilderness found to impact resources or visitor wilderness experience would be camouflaged or removed.

Placement of any new fixed anchors in wilderness should require prior approval in the form of a permit by the Superintendent, and any climbing impacts in wilderness should not exceed 1998 levels. Fixed anchor free zones would be created in the park.

Proposed Action (alternative A)
A wide variety of climbing experiences would be maintained in the park. The National Park Service would issue permits for the installation of new climbing bolts. Bolts on routes in the climbing areas in the developed zone or the backcountry trans-ition subzone, would be replaced on an as needed basis. Bolting would not be permitted in the wilderness subzone.

No Action (alternative B)
The status quo would be maintained using the Climbing Management Plan, which prohibits the installation of expansion bolts in rock faces in designated wilderness. The plan permits the installation of new bolts in the nonwilderness zones. Permits could be issued for the use of power drills to replace bolts in nonwilderness.

Maximum Protection (alternative C)
Fixed anchors would be confined to the developed zone. No new bolted routes would be established in the backcountry transition subzone or the wilderness subzone. Replacement bolts would not be permitted except in the developed zone. All bolts would be gradually removed from the natural zone. Unaided climbing via top-rope or free climbing would be

permitted on any of the routes.

Climbing in the wilderness subzone would be by permit only. The number of permits would be limited to reduce impacts to natural and cultural resources caused by crowding and the concentration of climbing parties. Permits would be issued for specific geographic areas, and climbers would apply on a first-come, first-served basis for access to particular climbing areas. No permits would be issued for certain areas, such as the East Coxcomb Mountains.

Minimum Requirements (alternative D)

Climbing would be managed as one of the primary purposes of Joshua Tree National Park. Resource protection efforts that could interfere with climbing would be avoided. Installation of new bolts or the replacement of existing bolts would not be limited. Climbers could install bolted routes anywhere in the park without a permit. No area of the park, except those closed to the public, would be closed to climbing. Motorized drills would be permitted for the installation of bolts in nonwilderness areas.

AUTO CAMPING

New Proposed Action (alternative E)

The current policy on automobile camping would be applied to the land added to the park in 1994, and auto camping would be allowed only in designated campgrounds. Auto camping along roads would not be permitted anywhere in the park. The National Park Service would have the option to study the placement of a primitive auto camp in the backcountry transition subzone of the Little San Bernardino Mountains.

Proposed Action (alternative A)

The current policy on automobile camping would be applied to the land added to the park in 1994, and auto camping would be allowed only in designated campgrounds. Auto camping along roads outside of campgrounds would not be permitted anywhere in the park. No auto-mobile campground facilities would be constructed on any of the added land.

No Action (alternative B)

All automobile camping would be confined to designated campgrounds.

Maximum Protection (alternative C)

All automobile camping would be confined to designated campgrounds. This applies to the land added to the park in 1994 as well as land in the former national monument.

Minimum Protection (alternative D)

Visitors could drive along any of the open roads in the park and pull off within 60 feet of the centerline (or 100 feet off centerline in non-wilderness) and set up camp for overnight stays. This practice would be permitted along any road in the developed zone. Such roads are found throughout Joshua Tree National Park.

CLOSURES

New Proposed Action (alternative E)

Some park areas would be closed to public use or limited to day-use only. These restrictions would be maintained on former monument land and additional areas would be designated on the new land. The purpose of the restrictions would be to ensure successful breeding of resident wildlife and to reduce stress to wildlife during summer heat and drought. Restrictions on overnight use would be continued in the backcountry transition and wilderness subzones for the following areas:

- Cultural sites — Keys Ranch (640 acres), Lost Horse Mine (80 acres)
- Water sources — Lost Palms and Munsen Canyons (3,840 acres), Buzzard Springs (2,640 acres), Rattlesnake Spring (2,640 acres), Smith Water Canyon (1,280 acres), Coxcomb Adit (2,640 acres), Stubbe Springs (5,120 acres)
- Land areas — Wonderland of Rocks (30,053 acres), Pushawalla (7,680 acres)
- The Keys Ranch site would be closed to the public except for guided tours.

Proposed Action (alternative A)

Some areas in the park would be closed to public use or limited to day use only. These restrictions would be maintained on former monument land and additional areas would be designated on the new land. The purpose of the restrictions would be to ensure successful breeding of resident wildlife and to reduce stress to wildlife during summer heat and drought. Restrictions on overnight use would be continued in the backcountry transition and wilderness subzones for the following areas:

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- Land areas — Wonderland of Rocks (30,053 acres), Pushawalla (7,680 acres)
- The Keys Ranch site would be closed to the public except for guided tours.

Maximum Protection (alternative C)

Restriction on overnight use would be maintained in the backcountry transition and wilderness subzones for the following areas:

- Cultural sites — Keys Ranch (640 acres), Lost Horse Mine (80 acres)
- Water Sources — Lost Palms and Munsen Canyons (3,840 acres), Buzzard Springs (2,640 acres), Rattlesnake Springs (2,640 acres), Smith Water Canyon (1,280 acres), Coxcomb Adit (2,640 acres), Stubbe Springs (5,120 acres)
- Land Areas — Wonderland of Rocks (30,053 acres), Pushawalla (7,680 acres)
- The Keys Ranch site would be closed to the public except for guided tours.

Special resource protection areas would be designated where there would be no public access during the summer. The closures would protect bighorn sheep water sources during critical drought months. The areas are: Lost Palms and Munsen Canyons, Buzzard Springs, Forty-nine Palms Canyon, Rattlesnake Springs, Smith Water Canyon, Pushawalla, Stubbe Springs, Coxcomb Adit, Russi's Rocks Guzzler, and Coxcomb Guzzlers. The acreage of these areas are the same as described for day use only areas. Russi's Rocks and Coxcomb Guzzler are 640 acres each.

Minimum Protection (alternative D)

All restrictions on overnight use in the back-country transition and wilderness subzones would be removed. The Keys Ranch site would remain closed to the public except for guided tours.

GROUP SIZE

New Proposed Action (alternative E)

The intent of the group size limits would be to foster and protect different visitor experiences in the different subzones. The natural zone includes the natural environment subzone, now referred to as the backcountry transition subzone, and the wilderness subzone. The overnight group size limit would be 12 throughout the wilderness subzone and 25 in the backcountry transition subzone.

Proposed Action (alternative A)

Different group size limits would be established for overnight camping in the natural zone in the park. The natural zone includes the natural environment subzones, now referred to as backcountry transition subzone, and the wilderness subzone. The intent of the group size limits is to foster and protect different visitor experiences in the different subzones.

No Action (alternative B)

There would be no limits on the size of groups that use different zones for overnight camping. Overnight camping would be permitted any-where in the backcountry transition and wilder-ness subzones that is open to public use, 1 mile from an open road and 500 feet from a desig-nated trail or a natural water source. There would be no limits imposed on the number of parties permitted in each zone at any one time. No limits would be imposed on the size of day use groups.

Maximum Protection (alternative C)

Limits would be imposed on the size of groups that enter different zones for overnight camping. The group size limit in the backcountry transi-tion subzone would be 15. In the experience class A wilderness, overnight group size would be limited to 8. Group size in experience class B wilderness would be limited to 6. Backcountry camping by overnight groups would be per-mitted only in specifically designated and hardened sites in the back-country transition and wilderness subzones, which would be further subdivided: Limits would be imposed on the number of parties permitted in each subdivision at

any one time to minimize contacts between groups. Day users would be subject to the same group size limits as overnight users.

Minimum Requirements (alternative D)

No limits would be imposed on the size of groups that enter different zones for overnight camping. Backcountry camping by overnight groups would be permitted anywhere in the backcountry transition and wilderness subzones that is otherwise open to public use and that is at least 1 mile from a road and 500 feet from a natural water source. No limits would be imposed on the number of parties camping in the backcountry at any one time or on the group size of day users.

ARTIFICIAL WATER SOURCES

New Proposed Action (alternative E)

The National Park Service would study four existing major artificial water sources for wildlife in the park. National Park Service biologists, in consultation with other Federal and state agencies, would determine the length of the study period and its implementation. All four major artificial water sources would be examined to determine if they meet National Park Service policy on habitat manipulation for native animal species and the minimum requirement for administration of wilderness. Maintenance of the guzzlers could continue during the study period.

Artificial water sources would have to meet the provisions of the section 4(c) of the Wilderness Act and of National Park Service Management Policies to remain. Those sources that clearly do not meet such statutory or policy standards would gradually be removed to avoid disruption to wildlife populations. Water sources that sustain wildlife populations, meet the standards of the Wilderness Act, and meet National Park Service Management Policies would remain in place.

Proposed Action (alternative A)

The National Park Service would study three major artificial water sources for wildlife in the park. The study would determine whether the water source is functional and practical in sustaining targeted wildlife species. Dysfunc-tional water sources would be removed. Functional artificial water sources would have to meet the provisions of section 4(c) of the Wilderness Act and of National Park Service Management Policies. Those sources that clearly do not meet such statutory or policy standards would gradually be removed to avoid disruption to wildlife populations. Water sources that sustain wildlife populations, meet the standards of the Wilderness Act, and meet National Park Service Management Policies would remain in place.

No Action (alternative B)

The three major artificial water sources in the park would remain but would not be studied. They would not be maintained or repaired but would be removed if they began to pose a hazard to wildlife. They would deteriorate and eventually fail. No new sources would be installed.

Maximum Protection (alternative C)

All artificial water sources in the park would be removed immediately, and new sources would not be installed. Their propriety and efficacy would not be scrutinized.

National Park Service Management Policies allows for habitat manipulation to aid a wildlife population under prescribed and limited circumstances. This alternative would remove human intrusions from the natural zone, including artificial water sources, rather than manipulate the environment.

Minimum Requirements (alternative D)

All artificial water sources in the park would be maintained without analysis. New sources could be installed with NEPA compliance, but the propriety and efficacy of existing sources would not be scrutinized. More alteration of natural features in the park would be allowed.

DESERT TORTOISE RECOVERY

New Proposed Action (alternative E)

In conformity with section 4(f) of the Endangered Species Act (16 U.S.C. 1533(f)), the U.S. Fish and Wildlife Service (FWS) published a recovery plan for the Mojave population of the desert tortoise (Gopherus agassizii) in June 1994. The recovery plan fulfills, in part, the statutory obligation of the Department of the Interior under the Endangered Species Act. The proposed action would adopt the primary recommendation of the Desert Tortoise Recovery Plan, except fencing by designating the entire nondeveloped zone in the park (approximately 789,000 acres) as a desert wildlife management area (DWMA).

The Joshua Tree desert wildlife management area would lie partially in the Northern and Eastern Colorado recovery unit and the west Mojave recovery unit. The National Park Service would then implement the management actions recommended in the Desert Tortoise Recovery Plan. Nearly all of the plan's recommendations are already in force in the park under National Park Service regulations designed to protect the park and its resources.

Proposed Action (alternative A)

In conformity with section 4(f) of the Endangered Species Act (16 U.S.C. 1533(f)), the FWS published a recovery plan for the Mojave population of the desert tortoise (Gopherus agassizii) in June 1994. The recovery plan fulfills, in part, the statutory obligation of the Department of the Interior under the Endangered Species Act. The proposed action would adopt the primary recommendation of the Desert Tortoise Recovery Plan by designating the entire nondeveloped zone in the park (approximately 789,000 acres) as a desert wildlife management area (DWMA).

The Joshua Tree desert wildlife management area would lie partially in the eastern Colorado recovery unit and the western Mojave recovery unit. The National Park Service would then implement the management actions recommended for in the Desert Tortoise Recovery Plan. Nearly all of the plan's recommendations are already in force in the park under National Park Service regulations designed to protect the park and its resources.

No Action (alternative B)

No formal action would be taken to implement the recommendations of the recovery plan, but National Park Service regulations or policies already in place prohibit the disturbance of natural resources. Off-road vehicles, dogs in the backcountry, and feral burros and horses are restricted. No further action would be taken to regulate public use. The National Park Service would be required to consult with the FWS on actions that could affect the desert tortoise.

Maximum Protection (alternative C)

Under this alternative, 36.9 miles of eight roads (Berdoo Canyon, Pinkham Canyon, Thermal Canyon, Thermal-Pinkham connector, Black Eagle Mine, Grubstake Canyon, Powerline Roads east and west, and the west Eagle Mountain aqueduct access road) would not be opened. All are on land added to the park in 1994 and the first six lie in designated critical tortoise habitat.

Minimum Requirements (alternative D)

Joshua Tree National Park would continue to be managed under the mandates of the Organic Act of 1916 and the Wilderness Act of 1964 and would regulate public conduct accordingly.

CONCLUSION

All alternatives presented were considered for management of the backcountry and wilderness areas in Joshua Tree National Park. The alternatives provided a basis for comments regarding management direction in protecting the park. The new proposed action would ensure that there would be no additional land disturbance, that previously disturbed lands would be reclaimed, that a wide variety of visitor experiences would be enhanced, and that conflicts would be minimized through zoning. Group sizes, trail allocations and designation, and a climbing management plan would be addressed.

FIGURES

PURPOSE AND NEED FOR THE PLAN

INTRODUCTION

This amendment to the General Management Plan for Joshua Tree National Park would guide the management of natural and cultural resources, visitor uses, and National Park Service administrative practices in the natural zone of what was Joshua Tree National Monument. It would also zone all of the approx-imately 234,000 acres added to the national park on October 31, 1994.

The draft General Management Plan Amendment and EIS and the Supplement to the Draft General Management Plan Amendment and EIS present a proposed action and four alternatives (including a no-action alter-native). After review, comment, and modifi-cation, the final version of the new proposed action (alternative E), when used together with the 1995 General Management Plan, would guide management of Joshua Tree National Park for the next 10-15 years. During that time the National Park Service could alter decisions made under this plan only with compliance with NEPA, public involvement, and other consultation as required by law. Because this amendment primarily addresses wilderness and backcountry management issues, the National Park Service would review the adopted alternatives at 5-year intervals.

The new proposed action (alternative E) and its alternatives recommends actions that would better protect the park's resources and afford visitors a wide array of recreational opportunities. This document also analyzes the environmental consequences of each alternative.

BRIEF DESCRIPTION OF THE PARK

Joshua Tree National Park is located in the Mojave and Colorado Deserts of southern California. The park lies along the eastwest transverse ranges of the Little San Bernardino Mountains. The south boundary follows the base of these mountains along the northern perimeter of the Coachella Valley; the north boundary is defined by the Morongo Basin. The park lies in San Bernardino and Riverside Counties.

Wilderness

Of the park's more than 794,000 acres, 585,040 acres are legislatively designated as wilderness or potential wilderness and are set aside for the preservation of the most primitive and unconfined forms of recreation. Access is limited to hikers and pack animals and development is generally prohibited.

Features

The compressed transition zone between the Mojave and the Colorado Deserts makes it possible to cross from one desert to the other in less than 65 miles. The park contains all or portions of the San Bernardino, Cottonwood, Hexie, Pinto, Coxcomb and Eagle Mountain ranges. The eastern portion of the park averages 2,000 feet in elevation, while the western half is mostly above 4,000 feet. Extremes in elevation range from 1,000 feet at Pinto Well to 5,900 feet at Quail Mountain. Major valleys include the Pinto Basin, Juniper Flats, Covington Flats, Pleasant, Queen and Lost Horse Valleys (figure 1).

Joshua Tree has unusual desert plants and animals and spectacular geological formations. The name Joshua Tree signifies that the park has a natural history focus, but the area also has a rich and varied cultural history. Humans, from prehistoric times to the present, have lived in this desert environment.

PLANNING DIRECTION

National Park Service management goals guided the formulation of the proposed action and the alternatives. The management goals are derived from:

- park purpose
- significant resources
- primary interpretive themes

On October 31, 1994, Congress established Joshua Tree National Park and abolished the national monument of the same name that had been proclaimed in 1936. In creating Joshua Tree National Park and other federal reservations in the California desert Congress intended to:

- preserve the unrivaled scenic, geological, and wildlife values associated with these spectacular natural landscapes,
- perpetuate the significant and diverse ecosystems of the California desert in their natural state,
- protect and preserve historical and cultural values of the California desert associated with ancient Indian cultures and western exploration and settlement,

- preserve sites that exemplify the mining, ranching, and railroading history of the old West,
- provide opportunities for compatible outdoor recreation, protect and interpret ecological and geological features and historic, paleontological, and archeological sites,
- maintain wilderness values,
- promote public understanding and appreciation of the California desert, and
- retain and enhance opportunities for scientific research in undisturbed ecosystems.

The act of August 25, 1916, the Organic Act of the National Park Service (16 USC 1), pre-scribed that the "fundamental purpose of...parks. . .is to conserve the scenery and historic objects and the wild life therein and to provide for the enjoy-ment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future gener-ations." In 1970, Congress declared that the Organic Act provisions, including the statement of fundamental purpose, would apply to all areas of the national park system "to the extent that such provisions are not in conflict..." with the statute that specifically applies to that particular area (16 USC 1c[b]).

The vast majority of the land in Joshua Tree National Park is designated by law as wilder-ness, either by the act of October 20, 1976, or the act of October 31, 1994. The Wilderness Act of 1964 further describes the purpose of wilder-ness desig-nations, which is to preserve lands in their natural condition "for the use and enjoy-ment of the American people in such manner as will leave them unimpaired for future use and enjoyment as wilderness."

The Wilderness Act defines wilderness as "an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain, . . . an area of undeveloped Federal land retaining its primeval charac-ter and influence without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions . . ." The Wilderness Act also generally prohibits motor vehicles, motorized equipment, mechanized transport, motorboats, permanent roads, temporary roads, landing of aircraft, commercial enterprises, and structures and installations. The act contains some limited exceptions to these prohibitions.

The purpose of Joshua Tree National Park is to preserve the natural and cultural resources of the Mojave and Colorado Deserts so that the resources can be interpreted, understood, and enjoyed by present and future generations.

RESOURCE SIGNIFICANCE

Natural Resources

Joshua Tree National Monument was originally set aside to preserve an ecologically dynamic component of the Califor-nia Desert - much more than just Joshua trees. The eastwest transverse ranges support examples of Mojave and Colorado Desert ecosystems. The elevations range from almost 6,000 feet to near sea level, which creates an unusual compressed transition zone between the Mojave Desert and the Colorado prov-ince of the Sonoran Desert. Early proponents of the monument envisioned a representative seg-ment of the two deserts that would be large enough to embrace a self-sustaining natural system. This system contains biotic and abiotic components that influence each other and are, in turn, influenced by climate, fire, earthquakes, and other natural phenomena. In 1994, the California Desert Protection Act enlarged the monu-ment to include key parts of the transverse ranges so that the park would have ecologically determined boundaries.

The park's primary natural resources include the Mojave and Colorado Desert vegetative com-munities and the wildlife that is dependent on them. Most notable are the Joshua tree forests, the fan palm oases, and riparian communities. Animals such as bighorn sheep, desert tortoise, deer, coyote, bobcat, mountain lion and a wide range of birds and reptiles are promi-nent. Water, in the form of springs and seeps and occasional sheet flows, conserves the plants and wildlife.

There are exceptional geological features in the park. Mountains and basins dominate the landscape. Unusual and attractive rock formations rise from the desert. Natural quiet and clear night skies are essential for the visitor to realize the beauty and tranquility of the park.

Cultural Resources

The geological and biological diversity of the Joshua Tree area supported early human subsistence. In the post-Pleistocene epoch, the climate was milder and wetter than it is today. The Pinto Basin was a shallow lake 5,000 to 7,000 years ago, which narrowed to a river or stream. The people of the Pinto Basin complex lived along its banks. Because the water and lush veg-etation lured animals to the area, big game hunting was the predominant means of subsistence. As the climate changed, the Pinto Basin slowly dried up and populations of animals and people diminished. Human occupancy concen-trated outside what is now the park to the palm canyons in the lower valleys and to the cooler mountains. People returned seasonally to trade, hunt, and harvest.

The park contains early Pinto culture sites and traces of other prehistoric and historic American Indian cultures as well as remains of Euro-American gold mining, homesteading, and sub-sis-tence cattle ranching. The park is archeo-logically, eth-

nographically, and historically diverse and exhibits a continuum of cultural adaptations. There are significant collections of prehistoric and historic American Indian arti-facts and late 19th-century and early 20th-century non-Indian artifacts. These artifacts document the park's importance to eastwest migrations from prehistoric times. The remnants of past human occupations illustrate the adapta-tions that different groups made to live in the arid desert environment.

Recreational Resources

The natural and cultural resources provide out-standing recreational opportunities for the more than 1 million visitors who come to the park annually. Topographic relief and associated changes in temperatures encourage year-round visitor use. The park provides some of the most diverse desert wildflower displays in the south-western United States. There is also a wide variety of wildlife to observe. Joshua Tree is a popular location for the sightings of particular bird species not easily found elsewhere. Oppor-tunities to see, photograph, and study cultural resources also draw visitors. Old mines, ranches, and prehistoric rock art are all popular sites. Massive boulders and rock outcrops provide some of the best rock climbing in the country. Many families like to camp in the park so that they can scramble on the maze of boulders nearby. Skilled and novice technical rock climbers from around the world are attracted to the challenging climbing routes.

Wilderness Resources

The wilderness resource is a preeminent feature of the park. Approximately 75 percent of the park has been designated by Congress as wilderness. Wilderness provides an opportunity for recreational experiences that are primitive, nonmechanized, and nonmotorized, such as hiking, horseback riding, and climbing. Such experiences are intended to provide opportunities for solitude. In wilderness, visitors do not remain; they leave the area in an unimpaired state, with little or no trace of their presence.

PRIMARY INTERPRETIVE THEMES

The following interpretive themes are the most important concepts for visitors to understand about the park:

Joshua Tree National Park is comprised of two biologically different environments, the Mojave and the Colorado Deserts, that merge within the park boundaries to create an unusual ecological transition zone. Lush palm oases and springs draw importance to the essential nature of water to a healthy, functioning desert ecosystem.

The Joshua tree, with its unusual shape and adaptation, is a perfect vehicle for understanding the interdependence of organisms living in the desert.

Plants and animals have evolved to survive in the heat and drought. These adaptations produced an interesting array of lifeforms. Humans, from prehistoric times to present, also adapted to an environment with little water. People who have made this area their home adapted and provided a colorful and varied human history.

The picturesque landscape, including mountain ranges, desert basins, and massive rock outcrops, contributes to the park's significance. The dynamic processes that formed the area, including erosion and earthquakes, continue.

Deserts have suffered a great deal of human abuse. The arid landscapes are slow to heal, and tracks made by a single vehicle in the desert soil can often be seen for many years. Fragile desert ecosystems survive in a delicate balance. They quickly manifest even the subtle environmental changes brought about by humans. Protection of the California Desert can only be accomplished from an ecosystemwide perspective that promotes harmonious relationships between people and the environment. The "leave no trace" ethic must be taught to park visitors.

Wilderness is an area of special protection affected primarily by the forces of nature. The imprint of human activities is substantially unnoticeable. People are visitors who do not remain. The park offers the opportunity for visitors to experience nearly 600,000 acres in one of the largest wilderness areas remaining in southern California.

There are a number of natural and cultural history interpretive themes in the broader context of the national park system, including plains, plateaus, mesas, cuestas and hogbacks, mountains, vulcanism, sculpture of the land, caves and springs, paleontological epochs, deserts, streams, cultural development, indigenous people, and European colonial exploration and settlement.

MANAGEMENT GOALS

The General Management Plan developed goals to achieve the park's purpose. This amendment retains those goals, which are to:

- manage land and wilderness to preserve them unimpaired for future generations,
- participate cooperatively in the preservation of ecological units that extend beyond the park boundary,
- improve knowledge of natural and cultural resources,

- manage visitation more effectively and reduce impacts associated with dispersed and poorly defined visitor use facilities,
- educate park visitors regarding the National Park Service mission and the natural and cultural resources of the park,
- facilitate cooperative planning throughout the California Desert ecosystem with other public agencies and communities,
- improve park circulation; focus on safety, visual quality, and visitor experience, and
- improve the effectiveness of park operations.

These eight goals would be achieved in different ways and to varying degrees by the proposed action or the alternatives.

PLANNING ISSUES AND MANAGEMENT CONCERNS

The General Management Plan recommended that this Backcountry and Wilderness Management Plan be written to guide management of the natural zone of Joshua Tree National Monument and the 234,000 acres added to the park on October 31, 1994. The General Management Plan divided the old monument into management zones: developed, natural, and cultural. The natural zone was further sub-divided into the natural environment and wilderness subzones. The General Management Plan focused almost entirely on the park's developed zone and deferred addressing backcountry and wilderness management to this amendment.

Planning issues for this amendment were identified through the public scoping process, in the General Management Plan itself, or as a result of other statutory requirements. The major planning issues follow:

MANAGEMENT ZONING

The addition of 234,000 acres to the park required that the National Park Service include that land within the framework of management zones that was established for the former monument. Congress designated certain of the added land as wilderness, which automatically placed it in the wilderness subzone of the natural zone. Some of the land is not wilderness but will not be developed. This land is zoned as the natural environment zone, now referred to as the back-country transition subzone. Some of the added land could be zoned as developed to accom-modate roads. Congress provided for the protection and conduct of special right-of-way activ-ities by the Metropolitan Water District of Southern California (MWD) on some of the added land that is designated as a special use zone.

VISITOR ENJOYMENT

Trails

Inadequate control over the actions of increasing numbers of visitors has resulted in impacts to resources. The proliferation of trails, created not by thought or design but by passage of people or animals, has created a network of often redundant social trails that impact vegetation. The social trails concentrate use in only a small part of the park while other areas, suitable for similar experiences, are ignored. These social trails cause compaction of the soils and denude areas of vegetation. This Backcountry and Wilderness Management Plan designates a trail network to minimize such impacts.

Roads

This plan examines more than 100 miles of dirt road or tracks that traverse new land added to the park in 1994. A few were constructed, but most were created by the passage of vehicles. These roads, tracks, and jeep trails often lead to campsites marked by litter, fire rings, circles of compacted soil, areas denuded of vegetation, and hill-climb areas. Some are in designated wilderness and are auto-matically closed by law. They are not subject to the decision-making processes of this plan. Other traverse nonwilderness added to the park in 1994. Such roads provide 4-wheel drive access to scenic areas, which could be important to maintain. Holders of valid mining claims or owners of inholdings may have to use dirt roads that could be closed by the wilderness designation or by actions recom-mended in this plan. Such use would require National Park Service authorization. This plan determines which roads will remain open to public use.

Climbing

The quartz monzogranite was once a molten mass, which was forced upward or intruded into the overlying older Pinto gneiss. Erosion over the ages has stripped away the overlying gneiss and exposed the monzogranite outcrops for which Joshua Tree National Park is famous. Within the monzogranite, those areas with more widely-spaced joint cracks weather more slowly than others and form the high rock piles, called inselbergs. In some piles, well-defined joint systems are obvious; in other piles, smaller boulders have collapsed and obscured the underlying joint pattern. This geologic activity has made Joshua Tree National Park world renowned for the quality of its rock climbing.

A wide variety of climbing options, ranging from scrambling on the boulders in campgrounds to highly technical climbs, are available in the park. This wide spectrum of climbing opportunities (faces, overhangs, crags, etc.) encompasses all levels of difficulty. Approximately 5,400 routes exist on 700 rock formations and are concentrated over about 100,000 acres. These formations vary in size and can support one to 40 different climbing routes. Many climbs are a mix of crack and face climbing. Baseline data for both the number of routes and the number of named rock formations has been derived by compiling information from Alan Bartlett's rock climbing guides to Joshua Tree National Park and Randy Vogel's Joshua Tree Climbing Guide.

When many popular climbing areas, such as Yosemite and Grand Teton National Parks, City of Rocks, etc., are inaccessible because of inclement weather, temperate winters draw climbers from all over the world to Joshua Tree National Park. The Mojave Desert provides exceptional opportunities for solitude and communing with nature while climbing.

The climbing aid that generates the most controversy is bolting. Climbers place bolts for protection when no natural method of protection exists. This type of climbing generally takes place on rock faces devoid of cracks (called face climb-

ing). The placement of permanent expansion bolts in the rocks to facilitate climbs has been practiced at Joshua Tree and other national parks since technical climbing was introduced.

Top roping and clean climbing can provide protection for many climbs. The desire to lead face routes and the recent development of "sport climbing" requires the use of bolts. One bolt displaces approximately .4 cubic inches of rock. The preliminary analysis of the Joshua Tree National Park Fixed Anchor Survey estimates that there are slightly more than 7,100 bolts in the entire park.

In recent years, climbers have made a serious effort to camouflage bolt hangers and substitute rock-colored chains and/or webbing for the brightly colored webbing historically found at rappel stations. This is being done to lessen visual impacts associated with climbing.

Since February 1993, the park has prohibited new bolts and replacement of existing bolts in wilderness until the completion of the Backcountry and Wilderness Management Plan. In permitting recreational activities, including rock climbing, the National Park Service must ensure that no damage to cultural resources occurs and that every effort is made to protect the park's natural resources and wilderness values.

Automobile Camping

Park regulations require that visitors in auto-mobiles camp only in designated, estab-lished camp-grounds. This plan examines this policy to determine if automobile camping should be permitted along dirt roads.

Group Sizes, Backcountry Camping, and Area Closures

Group size limits have not been imposed on overnight or day users of the natural zone. This plan determines if group size limits should be adopted to enhance the visitor experience of the backcountry transition and wilderness subzones. A related planning issue involves whether to limit backcountry camping to designated and hardened sites or to permit dispersed camping anywhere in the backcountry under some or no specific restric-tions.

The plan adopts areas limited to day use only or closed to public access seasonally or permanently. One area (Keys Ranch) has been closed to all visitors except when accom-panied by National Park Service personnel. This restriction is for the protection of cultural resources. Other areas are limited to day use only for the protection of wildlife, park facilities, and historic sites.

The act of November 10, 1978 (16 USC 1a-7[b]), requires that every general management plan prepared by the National Park Service include identification of visitor carrying capacities. The National Park Service has concluded at this stage in the planning process that insufficient data exists to establish a carrying capacity for the natural zone of the park and for all land added to the park in 1994.

RESOURCES MANAGEMENT

Artificial Water Sources

Several artificial water sources ("guzzlers"), primarily for bighorn sheep, are on park land. Two such sources were constructed on former BLM land. There are circumstances under which the artificial manipulation of natural systems could be permissible in the park, including in wilderness. The artificial sources in the park, however, may have been installed without atten-tion to National Park Service management objectives. Some water sources no longer function and have been broken for many years. Other systems may or may not serve their intended purpose. The Backcounty and Wilderness Management Plan establishes the need to analyze the four major artificial water sources installed for wildlife in designated wilderness and if such sources should be removed or maintained.

Desert Tortoise

On June 28, 1994, the FWS adopted a recovery plan for the Mojave population of the desert tortoise (Gopherus agassizii). The Desert Tortoise Recovery Plan recommended that Federal land management agencies, primarily the BLM and the National Park Service, designate desert wildlife manage-ment areas (DWMAs) on the land that the agencies admin-ister. A designated DWMA is a geographic area of a prescribed mini-mum size and general location, arrayed in relationship to other such areas to protect a full complex of desert wildlife, including the desert tortoise.

Although designated desert wildlife manage-ment areas are a creation of the Desert Tortoise Recovery Plan, their aim is to protect a diverse ecosystem composed of many species at a landscape level. The National Park Service generally refrains from single species manage-ment, although species listed under the Endangered Species Act are an exception to this policy. Designation of a management area is more than single species conservation. It emphasizes protection of sensitive as well as nonsensitive components of communities and protects tortoise habitat as well as habitat for other native species.

The Desert Tortoise Recovery Plan recommended the kind of activities that should or should not be permitted in a management area to minimize human impact on the survival of the officially threatened desert tortoise. The Desert Tortoise Recovery Plan recommended the designation of a Joshua Tree designated wildlife management area that is largely coterminous

with the park. The planning issue involves the extent to which the National Park Service and this draft GMP amendment will seek to implement the Desert Tortoise Recovery Plan.

ADJACENT LAND USE

Developments and other land uses adjacent to the boundary threaten the integrity of the park's resources and wilderness values. Surrounding land use has changed significantly since the 1936 proclamation of the monument. Towns and cities and their associated infrastructure and recreational amenities, interstate and state highways, subdi-visions, utility corridors, mining, military facilities, and agricultural interests are now on or near the park boundary. Other concerns include the effects of air and water pollutants, invasion of nonnative species from adjacent land, groundwater drawdown, and noisy overflights that affect wilderness solitude. The park's resources are seriously threatened by illegal activities and uncontrolled access along the boundaries, such as off-road vehicle use, theft of desert vegetation and archeological resources, poaching and reptile collecting, wood cutting, and dumping of hazardous and nonhazardous solid waste.

Joshua Tree National Park has been part of an international biosphere reserve since 1984. Fulfillment of the biosphere reserve concept and long-term protection of ecological units that extend outside of the boundary are made more difficult by land use and development around the park. Congress revised the monument boundaries in 1950 to exclude nearly 250,000 acres to accommodate mineral extraction. The configuration of the 1936 monument that had been designed by biologists to protect the natural systems of two deserts was destroyed in many areas. Congress acted in 1994 to return substantial portions of the land removed in 1950.

The development of the west Mojave and the northern and eastern Colorado coordinated management plans will assist to ensure protection of ecological units in the California Desert. The BLM leads the development of these interagency plans with National Park Service participation. These regional plans will adopt the management strategies of this Backcountry and Wilderness Management Plan for the sections of those plans that pertain to the park and will meld the appropriate strategies with activities on adjoining land.

RELATIONSHIP TO OTHER PLANS

The document will constitute the Joshua Tree National Park Backcountry and Wilderness Management Plan.

Other plans that address park management at a more detailed level already exist, such as the Fire Management Plan. Other plans may have to be revised or developed. The Land Protection Plan of 1986 was amended in 1996. Both the original Land Protection Plan and the 1996 revision concluded that the National Park Service should acquire nearly all 57,000 acres of nonFederal land in the park (the exception would be the Congressionally protected MWD land). The Land Protection Plan regards all land as essential to protecting the resources of the park and advocates making them available for public enjoyment.

There are 12 patented and 33 unpatented mining claims in the park. The National Park Service is determining the validity of several claims. Anticipated develop-ment associated with the claims is minimal. There is no need for Joshua Tree National Park to develop a separate Minerals Management Plan. Instead, the Report on Claim Status for Joshua Tree National Park was prepared. That report, dated March 26, 1997, lists all claims, pinpoints their general location on master title plats, and provides relevant information.

The National Park Service will manage claims in accordance with the regulations at 36 CFR part 9, subpart A and the NPS Guide to Managing Mining Claims. All operations in connection with a claim require an NPS-approved plan of operations. Operations include access to a claim other than by foot or pack animal. Prior to approving operations in connection with claims, the National Park Service will first determine if unpatented claims are valid. This requirement does not apply to the 12 patented claims. For any operation that merits National Park Service approval, the National Park Service would first seek to acquire the claim. Any operator meeting National Park Service standards must also be in full compliance with laws of the state of California and the counties of Riverside and San Bernardino. Approved operations would be governed under the 9A standards, which require a bond and reclamation. The bond would always be posted with the Secretary of the Interior or his designee, the Superintendent of Joshua Tree National Park.

Abandoned mines are a minerals management issue. The most significant of the mines is an MWD gravel pit, approximately 20 acres in size, in the east Coxcomb Mountains. Ownership of this land may soon pass to the National Park Service. Many other small scars remain from decades of mining.

The Resources Management Plan (RMP) was adopted in 1993. It contains a project statement on the reclamation and restoration of disturbed land (including closed tracks and dirt roads) that will be updated to include the land that was added to the park in 1994. It will establish a protocol for the systematic monitoring of visitor impacts to the natural and cultural resources of the backcountry transition and wilderness subzones and will consider new project statements.

The National Park Service will revise the RMP project statement on inventory, documentation, evaluation, and management of cultural resources to include the land added in 1994.

The Interpretive Prospectus will not be revised as a result of this Backcountry and Wilderness Management Plan. However, the National Park Service will revise the Compendium of public use restrictions, closures, and conditions as required by regulations at 36 CFR 1.5 upon the adoption of the proposed action or other alternatives in this plan. This environmental impact statement will constitute the environmental review under applicable laws for any revisions to the Compendium.

The decisions made as a result of the final approved version of this Backcountry and Wilderness Management Plan will be incorporated into those sections of the ongoing west Mojave and northern and eastern Colorado Desert coordinated management plans pertaining to Joshua Tree National Park. The BLM serves as the lead Federal agency in the development of those plans.

PARKWIDE ALTERNATIVES

Joshua Tree National Park contains an extraordinary cross section of the California Desert. The park spans two major desert ecosystems and an unusual ecological transition zone. It has tremendous biological diversity, vast desert landscapes, and rich human history. The size of the park and the variety of its resources provide for a broad range of visitor experiences. To ensure that these values are preserved, the park would be managed to protect the Mojave and Colorado Desert ecosystems and their biological and cultural resources.

This Backcountry and Wilderness Management Plan contains a range of alternatives under certain guiding principles and key assumptions. The guiding principles follow:

- The National Park Service would manage visitor use of the natural zone and of the new land to minimize resource impacts.
- The park would provide visitors with opportunities to experience desert environments and to learn about the natural and cultural resources.
- Visitors would be able to engage in a wide range of recreational pursuits from operating 4-wheel-drive vehicles on rough and challenging dirt roads to the primitive experience of hiking in remote and undisturbed wilderness.
- Nearly 75 percent of the park would be managed to protect the wilderness resources and its character and values.
- The only areas of the added land that may be classified as part of the developed zone would be dirt roads that traverse that land and a possible primitive camp in the Little San Bernardino Mountains.

Management goals are to:

- preserve park resources unimpaired for future generations,
- coordinate the preservation of ecological units that extend beyond the park boundaries,
- improve management and knowledge of natural and cultural resources,
- manage visitation more effectively, and
- educate visitors regarding the National Park Service mission and the natural and cultural resources of the park.

In carrying out its management objectives, the National Park Service would consult with affected Indian tribes under laws, regulations, executive orders, and National Park Service policies. Pursuant to the National Historic Preservation Act (16 USC 470a[d]6[A] and 470f), the National Park Service would consult with affected Indian tribes when any National Park Service undertaking could affect a property of traditional religious or cultural importance to the tribe.

put summary of alternatives here

NEW PROPOSED ACTION—ALTERNATIVE E

The new proposed action (alternative E) would constitute an amendment to the 1995 General Management Plan. It would also be known as the Backcountry and Wilderness Management Plan. The new proposed action would minimize disturbance to resources and ensure their preservation unimpaired but would still afford the public a broad spectrum of recreational enjoyment.

MANAGEMENT ZONING

Management zoning determines how specific areas in the park would be managed to protect resources and provide for visitor enjoyment. The National Park Service establishes zones in parks in four classifications: natural, historic, developed, and special use. Within each of these zones, subzones can be designated to allow for particular management needs. The 1995 General Management Plan zoned the land in what was then Joshua Tree National Monument.

The new proposed action would alter the zoning of land addressed in the General Management Plan in only one minor way. It would rezone the Gold Park Road corridor (0.5 miles long and 60 feet wide) from the backcountry transition subzone to the developed zone.

Figure 2 shows the proposed park zones, including the land added by the California Desert Protection Act of 1994. Figure 3 shows the land that was added to the former Joshua Tree National Monument.

The National Park Service evaluated each area added to the park in 1994 to determine its contributions to the preservation of natural and cultural resources and wilderness. Management zones were then designated for each area. The management zones for the entire park include:

NATURAL ZONE (789,253 acres)

Preservation of natural resources and processes are primary in the natural zone, and only uses that have no adverse effects are permitted. The General Management Plan divided the natural zone into two subzones: the natural environment subzone and the wilderness subzone. Alternative E retitles the natural environment subzone as the backcountry transition subzone.

Backcountry Transition Subzone (204,213 acres)

The backcountry transition subzone is land zoned for the conser-vation of natural resources and processes, but not legislatively designated as wilder-ness. In this subzone, the National Park Service could construct or operate minor facilities such as patrol stations or toilets, operate motor vehicles, land aircraft, and engage in other activities that are prohibited in wilderness. Since this subzone preserves natural resources, any proposed development would be minor. Recreational activities that are prohibited in wilderness, such as bicycle riding on trails, could be permitted.

Wilderness Subzone (585,040 acres)

This sub-zone is governed by the strictest preservation standards and includes designated wilderness, potential wilderness, and recommended wilderness or wilderness study areas. The land in this zone is managed for the preservation of wildness and its undeveloped and primeval character and influence regardless of category.

Wilderness is an area "where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain." It retains its primeval character without permanent improvements or human habitation. Wilderness provides outstanding opportunities for solitude or a primitive and unconfined type of recreation. Man's imprint remains substantially unnoticeable.

To ensure that areas are managed as directed by Congress, Section 4(c) of the Wilderness Act prohibits nine activities on those wilderness lands. Subject to specific exceptions, the Wilderness Act stipulates that there would be no commercial enterprise, no permanent road, no temporary road, no use of motor vehicles, no motorized equipment, no motorboats, no landing aircraft, no other forms of mechanical transport, and no structure or installation within any wilderness area.The Wilderness Act provides a major exception to seven of the nine prohibitions "…to meet the minimum requirements for the administration of the area for the purpose of this Act." The only activities not excepted from the prohibition area commercial enterprises and permanent roads.

The Wilderness Act recognizes recreation as an appropriate use of wilderness in a manner consistent with the underlying purposes of wilderness—maintaining naturalness and providing opportunities for solitude. Primitive and unconfined types of recreation may require the construction or maintenance of minimum facilities, such as trails. Trails providing access to and within wilderness serve the transportation needs of visitors and administrative personnel and are often a key tool to keep visitor use within the capacity of the wilderness. The location and type of trails to a wilderness area's boundaries, trailhead improvements, and the type of trail network within the area are important factors in influencing the number of visitors and in dispersing use to reduce environmental impacts and social impacts to visitors themselves. Trails are acceptable in a wilderness when they are constructed for these purposes. Similarly, climbing routes that use fixed anchors can also perform the same functions.

While recreation is a recognized use of wilderness, it is neither the only nor the most important use. Some thought should be given to leaving large portions of a wilderness area free of trails. Visitor use can be dispersed by constructing new trails where trails are already located or, more often, simply through better maintenance of the existing trail network.

DEVELOPED ZONE (3,786 acres)

This zone provides for the existence and maintenance of facilities to serve visitors. For the land added to the park in 1994, the developed zone consists exclusively of roads and possibly parking areas along roads. Alternative E proposes no other developments on the land added to the park in 1994 with the exception of a parking area at the southern base of the Berdoo/Thermal Canyon Bicycle Trail and the potential for a primitive automobile camp in the Little San Bernardino Mountains. This plan proposes that 37.7 miles of unpaved roads be designated open to public use. Because 4.7 miles of those roads lie within the special use zone on a MWD right-of-way, those acres are calculated in the special use zone; they are not included in the developed zone. The developed zone includes a buffer of 100 feet on either side of the centerline of roads and trails. Complete maps of the park's developed zones can be found in the park's General Management Plan.

SPECIAL USE ZONE (961 acres)

The special use zone includes land that the National Park Service expects would continue to be used for activities that are generally not appropriate in national parks but that have received special author-ization. Special use zones accommodate circumstances where Congress has directly provided for activities that are otherwise incompatible with resource preservation and visitor enjoyment. The only special use zone in the new areas of Joshua Tree National Park is owned by the MWD. The zone also includes land that the MWD does not own but on which it has a Boulder Canyon Project Act (1928) right-of-way containing a 220-kv powerline (approximately 150 acres).

MWD land, obtained under the authority of a 1932 act of Congress, and rights-of-way obtained under the Boulder Canyon Project Act of 1928 are specifically protected by the California Desert Protection Act, section 406. Section 406 states that the incorporation of MWD fee lands into Joshua Tree National Park would not terminate the fee title to the MWD land. The law states:

"Nothing in this title shall have the effect of terminating any validly issued right-of-way...granted or permitted to the Metropolitan Water District pursuant to the Boulder Canyon Project Act (43 U.S.C. 617-619b), which is located on lands included in the Joshua Tree National Park, but outside lands designated as wilderness..."

"Nothing in this title shall have the effect of terminating the fee title to the lands or customary operation, maintenance, repair, and replacement activities on or under lands granted to the Metropolitan Water District pursuant to the Act of June 18, 1932 (47 Stat, 324), which are located on lands included in the Joshua Tree National Park, but outside of lands designated as wilderness under section 601(a)(2)..."

Two tracts of MWD land are in the park and not outside of land designated by section 601 of the California Desert Protection Act as wilderness. The tracts are #13503 and #13603. According to the report on the California Desert Protection Act of the House Committee on Natural Resources, the MWD agreed to abandon these parcels so as to enhance the management of Joshua Tree wilderness. These tracts are in the wilderness zone.

MWD use of its 1932 act fee land in the park and outside of wilderness, in accordance with the purposes of the act of 1932, are by law compatible with the park. However, the California Desert Protection Act modifies the manner in which the MWD may conduct its activities on 1932 act fee lands and 1928 rights-of-way in the park. The law prescribes that "such activities shall be conducted in a manner which would minimize the impact on park resources." Because of their special nature, the MWD lands and rights-of-way are designated as a special use zone.

The MWD owns 1,621 acres in the park. The special use zone includes only 811 acres of that land, which is likely to remain in MWD ownership in perpetuity for the operation and maintenance of the Colorado River aqueduct and associated facilities.

Some of the MWD land may not be needed in the future and could be sold or relinquished to the United States. For example, over 100 acres of MWD land lies inside wilderness. The MWD has committed to relin-quish such land to the United States. The MWD special use zone includes National Park Service tracts numbered 11234 (west Cholla camp), 11917 (Pinto Well and road), 13704 (Coxcomb utility lines), 13705 (south Coxcomb tunnel), 13716 (powerline), 14005 (west Eagle Mountain aqueduct and associated camps and utility lines), 14204 (Hayfield tunnel), 14304 (camp), 14440, 14441, 14443, and 14444 (associated with a right-of-way for a 33-kv powerline). The tract numbers are listed and depicted in the Land Protection Plan.

The special use zone does not include the land with non-MWD power or right-of-way facilities that are now in the park, such as American Telephone and Telegraph's Belle Mountain microwave tower. That facility is on land that was added to the park in 1994. The California Desert Protection Act does not provide the same level of protection to that facility as was conferred on MWD facilities. When the right-of-way for the Belle Mountain microwave tower expires on March 19, 2014, the National Park Service would review and consider how best to reduce and/or eliminate the visual impact of the tower.

REDESCRIPTION OF 1995 GMP WILDERNESS ZONING

The new proposed action (alternative E) recalculates the amount of wilderness in the park, including the 1976 wilderness zone.

The 1976 act of Congress (PL 94-567) esta-blished 429,690 acres of wilderness and 37,550 acres of potential wilderness in Joshua Tree National Monument. The act directed the National Park Service to present to Congress a map and legal description of that wilderness.

The National Park Service published maps that were numbered 15620,003D and dated February 1977. The legal description that accom-panied the official wilderness maps states that there were 422,320 acres of wilderness and 30,740 acres of potential wilderness in the monu-ment for a total of 453,060. Since the act of 1976 states that the maps and legal description prepared by the National Park Service "shall have the same force and effect as if included in this Act," this amendment presumes that the acreage of 453,060 wilderness and potential wilderness is definitive.

In January 1997, the National Park Service detected errors that amounted to 200 acres in the maps and legal description cited above. Under authority of the 1976 act creating Joshua Tree National Monument wilderness, the errors were corrected. As a result, there were 422,520 acres of wilderness and 30,740 acres of potential wilderness, totaling 453,260, which is 13,980 fewer acres of wilderness and potential wilder-ness than Congress authorized in 1976.

Congress added 131,780 acres of wilderness in 1994. The total wilderness in the park is therefore approximately 585,040 acres.

On May 27, 1997, the National Park Service published a notice in the Federal Register under section 3 of PL 94-567 to convert 3,502.20 acres of potential wilderness, designated in 1976, to full wilderness. Thus, there are now 557,802 acres of wilderness and 27,238 acres of potential wilderness in the park for a total of 585,040 acres.

PROPOSED ADDITIONS TO DESIGNATED PARK WILDERNESS

The General Management Plan states that the Backcountry and Wilderness Management Plan would serve as a vehicle to determine if lands not now designated as wilderness should be proposed for designation.

The Former Joshua Tree National Monument

This proposed action recommends minor additions, totaling 9,060 acres, to the 1976 wilderness.The plan does not alter the 1976 wilderness boundaries, but recommends that the Secretary of the Interior and the President transmit to Congress a proposal for such revisions. Pursuant to section 3(c) of the Wilderness Act, Congress alone may designate wilderness in areas of the national park system.

This plan, along with the public hearings and notice in the Federal Register concerning this plan, fulfills the conditions for recommending wilderness boundary modifications or adjustments required. There are no nonfederal land or interests or mining claims within the additions recommended.

The five minor additions are depicted in figure 4 and are:

(1) to 1976 wilderness unit #7, T1S, R14E, section 36, W½, W½ of NE¼ - 400 acres

The 1976 wilderness provision did not designate this land as wilderness because it was a state-owned tract. Nor did the 1976 act designate it as potential wilderness, as Congress did for all other state-owned tracts in the monument, because this 400-acre tract was then on the outer boundary of the monument. Now that the park has been expanded to the north, and the lands to the north were designated wilderness in 1994, this tract represents an anomaly. It is an isolated island of Federal nonwilderness land surrounded on all sides by Federal wilderness.

(2) to 1976 wilderness unit #3, T3S, R9E, section 9, NW¼, SW¼, and SE¼ - 480 acres; section 10, S½ - 320 acres, section 15, N½ -320 acres; section 16, - 640 acres; section 21, E½ - 320 acres; section 28, E½ - 320 acres

This land was excluded from the original National Park Service wilderness proposal because there were several large non-federal tracts when that proposal was made. The National Park Service acquired the land, except for one State of Cali-fornia tract, after the wilderness proposal was made to Congress.

(3) to 1976 wilderness unit #6, T5S, R11E, section 1, W½, W½, E½ - 480 acres; section 12, NW¼, NE¼, NE¼, NW¼, W½, W½ - 240 acres; section 13, NW¼, NW¼, SW¼, NW¼, NW¼, SW¼ - 120 acres

This land has all the characteristics of wilderness with no development, and no developments are planned.

(4) to 1976 wilderness unit #6, T5S, R12E, section 29, N½, NE¼, SW¼, N½, SE¼ - 440 acres; section 28, NW¼, NW¼, S½, N½, S½ - 520 acres; section 27, S½, NW¼, SW¼, W½, W½, SE¼, W½, SE¼, NE¼ - 300 acres; section 33, NE¼, NE¼, - 40 acres; section 34, W½, S½, SE¼, W½, NW¼, NE¼, SW¼, NE¼, NW¼, SE¼ - 480 acres; section 35, SW¼, SW¼, - 40 acres

This land was not included in 1976 wilderness because of a waterline from a spring in Lost Palm Canyon. That waterline was subject of a National Park Service special use permit that was issued in 1966 and expired in 1986. No one possesses any rights under California law to appropriate water from this source. Much of the waterline has now been removed.

(5) to 1976 wilderness unit #2, T2S, R8E, section 19, - 640 acres; section 30, - 640 acres; T2S, R 7E, section 22, E½, SE¼ - 80 acres; section 23, W½, SW¼, SE¼, SW¼ - 120 acres; section 24, E½, E½ - 160 acres; section 25, - 640 acres; section 26, N½ - 320 acres; section 27, E½ - 320 acres; section 34, N½, NE¼ - 80 acres

The 1976 wilderness provision did not designate this land as wilderness because of the presence of two National Park Service administrative roads and limited water development for wildlife at Stubbe Springs. The water development has since been removed and no replacements are planned. Under this alternative, the land would be administered as wilderness.

If the above changes were adopted, the land described above would be rezoned from the backcountry transition subzone to the wilderness subzone.

Land Added to Joshua Tree National Park in 1994

A review of suitability for wilderness desig-nation should be conducted on a roadless area in the Cottonwood Mountains (see figure 4). The study should be completed within three years after the final version of this draft plan is adopted and should make a written determination of suitability or unsuitability. If the area were to be found suitable, the study would produce a recom-mendation by the Secretary of the Interior to the President under section 3(c) of the Wilderness Act. The area to be studied lies west of Cottonwood Road, south and east of Pinkham Canyon Road, south of the old monument boundary, and north of the MWD Colorado River aqueduct. The wilderness study area encompasses approximately 27,000 road-less acres and would extend wilderness unit 4. BLM did not conduct a wilderness review for this area under the Federal Land Policy and Manage-ment Act of 1976 because the area was fragmented by about 50 percent nonfederal ownership. The area is now federally owned.

INTERIM MANAGEMENT OF PROPOSED WILDERNESS AREAS

National Park Service policy directs that areas recommended for wilderness designation or for wilderness study be managed in such a way as to not diminish the wilderness suitability until the legislative process has been completed.

VISITOR ENJOYMENT

The National Park Service Organic Act directs the National Park Service to preserve park resources “unimpaired,” while providing for the public enjoyment of those resources. Because public enjoyment cannot be sustained if park resources are damaged or compromised, resource protection must necessarily be the National Park Service’s paramount responsibility. Within that constraint, the National Park Service must manage recreational activities and settings to protect park resources, provide for public enjoyment, promote public safety, and minimize conflicts with other visitor activities and park users. The National Park Service is directed to monitor recreational activities and assess their potential impacts on park resources. When there is potential for adverse impacts, the National Park Service would initiate appropriate policies or regulations response to prohibit or control the activity and avoid the adverse impacts. Therefore, the National Park Service should take a proactive stance to prevent degradation to resources, an adverse impact on wildlife, or diminishment of other visitors’ enjoyment from occurring.

TRAIL DESIGNATION

A comprehensive system of trails and corridors would pro-vide foot, bicycle, and equestrian access into the backcountry transition and wilderness subzones and foot and equestrian access into the wilderness subzone. Standard trail etiquette would be encouraged, and the U.S. Forest Service standards for “right-of-way” use would be adopted. A detailed map of the trail network is available at park headquarters.

Development of the trail system would provide for better resource pro-tection and would occur over the next several years. Designated trails would be defined by an identifiable tread and maintained to varying degrees depending upon the zone or subzone in which it occurs. Existing trails would be evaluated. Some would be slightly re-routed if necessary for resource protection; others would be rehabilitated. All designated trailheads would be marked with signs. Desig-nated corridors would be specif-ically defined routes of travel that follow the natural terrain, such as desert washes or rock passes. Corridors would not have main-tained trail tread, but signs could be installed.

This trail system would provide park visitors with opportunities to experience the backcountry and wilderness of Joshua Tree National Park. At the same time, this system would establish a trail network that would require minimal expenditures of time, money, and effort to maintain. The construction or maintenance of trails in wilderness is necessary for the proper administration and protection of wilderness and public safety. However, when working on trails, motorized equipment,

motor vehicles, aircraft, or mechanized transport would be used only after a minimum requirement determination for each project.

Backcountry and wilderness trails would be unpaved and only wide enough for single-file travel. Trails intended for horse and bike travel would also be only wide enough for traveling single file. Trails would be maintained and signed in keeping with the nature of the zone through which they pass. Signs would be more prevalent in the developed zone than in the backcountry transition and wilder-ness subzones. In the wilderness subzone, signs or markers would be installed only as necessary to define the trail and provide for visitor safety and resource protection. In the developed zone and back-country transition zones, interpretive signs could be installed.

The new proposed action would designate approximately 270 miles of backcountry and wilderness trails. Nature trails total an additional 8.85 miles. See Appendix A for a list, including descriptions, of the trail and corridor system. Individual trail miles do not necessarily reflect the total mileage required for a particular destination.

Cross-country routes of travel, other than six designated corridors, would not be identified. Visitors could hike the open desert, but topographical maps and compasses would be recommended. Various publications and maps that can be obtained locally have identified many routes.

In addition to the designated and maintained equestrian trails, equestrians could use six corridors for horse travel. These corridors would follow topographical features and provide for primitive riding and hiking. The corridors would not be maintained as trails but may be signed. The designated corridors total approximately 55 miles. Use of the corridor concept would be encouraged within the wilderness subzone.

Fourteen backcountry self-registration boards for overnight camping would be provided; one more than exists now (see figure 5). All overnight campers in the backcountry and wilderness would park and register at one of the 14 backcountry board locations. An exception would exist for those accessing remote areas, such as the eastern Pinto Basin and the Coxcomb, Pinto, Eagle, Little San Bernardino, and Cottonwood mountains from outside the park boundary. Those entering the park in these remote loca-tions would not be required to park at a backcountry self-registration board, but a permit would still be required. Permits could be obtained from any ranger, at any ranger station, and at the visitor centers at park headquarters and Cottonwood. Permits could also be requested by telephoning a ranger station or visitor center.

Day users would not have to register and could enter the backcountry and wilderness at any location. Backcountry boards would provide regis-tration forms, park rules and regulations, a small map of the immediate area, and any special limits or interpretive messages.

The new proposed action would designate many more miles of trails than were previously official. Casual or social trails not designated as part of the trail system would be restored to a natural condition. No new trail requests from the public would be considered until the trail network, including corridors, proposed in this plan is inventoried, developed, and monitored for several years. Monitoring of the trail network would become an on-going process. If, during the monitoring process, it was determined that resource damage or conflicts between user groups was occurring, the National Park Service would have the authority to either close trails and corridors or to reroute trails to mitigate the damage and prevent future resource and visitor experience degradation.

Hiking

Cross-country hiking would occur throughout the park except for Keys Ranch, which would be closed to unescorted visitors. Use of the trail system would be encouraged. Topographical maps, compasses, ample water, and survival gear would be recom-mended for travel off-trail.

Stock Use

Stock use would be limited to horses and mules and restricted to designated equestrian trails and corridors (see figure 6). At the discretion of the Superintendent, the use of llamas in the park could be studied in the future with the primary considerations being the protection of park resources and consistency with the National Park Service mission. Future studies would be considered only after a sufficient time has elapsed to allow for plan implementation and resource data collection.

Stock could use all dirt roads open to motor vehicles and the shoulders of paved roads. Stock would have to travel within the confines of the established trail tread and corridors. Resting or tethering of stock would not be allowed within 200 feet of any natural or artificial water source, including springs, seeps, wells, dams, and tanks.

Portions of Ryan and Black Rock Campgrounds would be designated as a day use staging area and as a frontcountry stock use camp. A new day use staging area would be created at the west entrance old borrow pit. The terminus of the Lower Covington Flat Road at the California Riding and Hiking Spur (mile 30) would be an equestrian parking area. This area was identified as the Lower Cov-ing-ton Flat picnic area in the General Management Plan, but no longer serves that purpose because an August 1995 fire destroyed the site. Other areas such as Indian Cove, Twin Tanks, Geology Tour Road, and North Entrance would continue to provide parking and access for horses. Numerous other parking areas could accommodate horse trailers and, provided that the trailers do not obstruct traffic, they would be permitted. Increases in visitor use

could require additional parking areas for horse trailers.

Those trails previously used by equestrians, which are not designated as part of the trail system, would be closed and rehabilitated.

Bicycle Use

Bicycles would be allowed on all roads open to motor vehicles. In addition, approximately 29 miles of trails would be designated for bicycle use. Bi-cycles would be restricted to roads and desig-nated bicycle trails as depicted in figure 6. With the exception of the Berdoo/Thermal Canyon Trail, the bicycle trails would be open to equestrian use. Caution on multiple-use trails would be recommended. A vehicle parking area could be established at the southern base of the Berdoo/Thermal Canyon Bicycle Trail to provide a staging point for loading/off loading of bicycles. The .5 miles of the Berdoo/Thermal Canyon Trail that currently lie within wilderness would be rerouted into the backcountry transition subzone. The .67-mile reroute in the backcountry transition subzone was surveyed in 1998 for desert tortoise habitat. One active burrow was located about 18 meters from the proposed route. An adult male tortoise was observed in the area.

Regional Trails and Access

The town of Yucca Valley has proposed a trail from La Contenta Road directly south to the park boundary that would become a part of the California Riding and Hiking Trail. A short section of trail to meet Yucca Valley's portion would be designated. The current trail, which continues two miles to the Black Rock Campground, would become the California Riding and Hiking Trail/Black Rock Spur.

Other regionally proposed access points (see figure 6) would include:

- Long Canyon north and south
- Wide Canyon
- Deception Canyon
- Fan Hill Canyon
- Pushawalla Canyon
- Black Rock area dirt road
- West entrance and BLM section

Long and Pushawalla Canyons would be designated as corridors. They would follow the canyon bottoms and would be unmaintained. The Black Rock area dirt roads would offer access by both horse and foot traffic into the network of trails in the area.

The BLM section north of the west entrance station would provide access to the network of trails in the vicinity. This would provide an opportunity for equestrians to access this area without staging at the borrow pit inside the west entrance.

There would be no trails or corridors designated inside the park in the Wide, Deception and Fan Hill Canyon areas. Since no trails would exist, hiking would be cross country. Recreational oppor-tunities could be limited, and development of parking areas and entry points would not be recommended.

In the future, there could be public interest in additional hiking access along the park boundary. As the adjacent land management agency or public entity secured public access up to the park boundary, the National Park Service would consider adding new trails to link the new access points. Each such addition not covered in this document would be considered in a separate environmental assessment.

ROADS

This new proposed action would designate 37.7 miles of nine roads on the land added to the park in 1994 as open to the operation of motor vehicles. The roads, depicted in figure 7, are:

- Berdoo Canyon Road - 6.5 miles beginning at old monument boundary, west to new park boundary
- Pinkham Canyon Road - 12 miles beginning at old monument boundary, west and then south to new park boundary
- Thermal Canyon Road - 3.5 miles beginning in T5S, R9E, south to new park boundary
- connecting link from Pinkham Canyon Road to Thermal Canyon Road - 2.5 miles
- Black Eagle Mine Road - 3.2 miles beginning at old monument boundary easterly to the new boundary
- Grubstake Canyon Road - 3.3 miles beginning at the Black Eagle Mine Road north to the old monument boundary
- Powerline Roads (restricted access) east - 3.5 miles, and west - 1.2 miles, follows the 220-kv powerline that lies on a

right-of-way issued to the MWD

- West Eagle Mountain aqueduct access road - 1.2 miles beginning at the eastern park boundary and traversing sections 36 and 35, T4S, R14E to its junction with the MWD West Eagle Mountain tunnel just south of the MWD Eagle Wash camp and dump area.
- Snow Cloud Mine Road - .8 miles from the Pinkham Canyon Road to the old Snow Cloud Mine.

The new proposed action would not authorize public use of any portion of the above roads that cross privately or state-owned lands where such use would constitute trespass. The above roads lie in nonwilderness and the National Park Service could permit motor vehicles on them. The roads would be open only to registered motor vehicles that are legal to operate on the public roads of the State of California.

This plan would not provide for the operation of off-road vehicles or California Green-Sticker Program vehicles anywhere in the park. In Joshua Tree National Park, the public could operate motor vehicles only on designated roads and parking lots. The operation of motor vehicles elsewhere in the park is prohibited by 36 CFR 4.10. National Park Service regu-lations preclude developing a special regulation that permits off-road vehicle use in the park on routes or areas other than roads. This plan would afford a driving experience not found elsewhere in the park. The dirt roads are rough and require four-wheel drive vehicles. Limited maintenance would occur to keep the roads passable to four-wheel drive standards and to mitigate natural closures. The roads traverse gorges that are deeply incised into the Little San Bernardino and Eagle Mountains. The terrain is rugged and dry and has a quiet and austere beauty. These roads should not be driven without the proper vehicle, equipment, and preparation.

The roads designated as open would continue to be closed to commercial vehicles under 36 CFR 5.6(b), as are the roads designated as open to public use in the former national monu-ment. The commercial vehicle prohibition would not apply to com-mercial vehicles that serve private concerns or interests in the park. Access by such commercial vehicles would be governed by permit under 36 CFR 5.6(c).

Some of the roads listed as open predate the park (1994) or monument (1936) and may be found to constitute rights of public highway under revised statute 2477. The National Park Service is authorized to regulate public use of the roads on park land.

All roads not designated as open would be closed and reclaimed as part of the natural zone. In concert with current desert wilderness management directives, restoration at Joshua Tree would use the "minimum requirements for administration" exception. This exception authorizes Federal land managers to employ temporary roads, use motor vehicles, and use motorized equipment only if such activities or uses are "…necessary to meet minimum requirements for the administration of the area for the purposes of the [Wilderness] Act."

Wilderness projects would consider appropriate restoration methods on a case-by-case basis. It would be the intent of these projects to restore wilderness qualities to these disturbed lands as well as to protect them from further destruction. Proven techniques for revegetation and reclamation would include: gathering seed from areas adjacent to disturbed sites, replanting sites with native vegetation, decompacting soil using tractors pulling a ripping bar, pitting soil with hand tools, and reducing erosion using weed-free mulching material. Any or all of these methods would be used to restore disturbed lands within the park.

CLIMBING MANAGEMENT

This plan would strive to prevent the cumulative impacts of climbing in Joshua Tree National Park from increasing to unacceptable levels and to mitigate impacts and restore areas that have been degraded by climbing activities. These goals would be achieved by assessing current conditions in the climbing environment by describing desired future conditions and by working with the climbing community and other interest groups to address any disparity between the existing conditions and the desired future conditions in all park areas.

This climbing management program would focus upon all aspects of the activity that could impact park resources. Creation of social trails, impacts to soil and vegetation at the base of climbs, degradation of scenic values due to chalk and fixed anchors, and impacts to the microhabitats, including flora and fauna found on rock surfaces, are some of the impacts of climbing.

Information necessary to complete an assessment of current conditions and for determining desired future conditions continues to be collected. The Council of Environmental Quality (CEQ) regulation (1502.2) provides for developing a plan when information is incomplete or unavailable. Initial scientific studies have been completed, such as the impacts of climbing on raptor nest site selection (Torab, 1997) and the impact of rock climbing on bird and plant diversity (Camp, 1995).

The National Park Service has taken other preliminary steps to obtain baseline information about resource impacts associated with climbing. Through surveys and sampling, the National Park Service is assessing current resource conditions in

the climbing environment. These efforts focus upon areas affected by social trails and the flora and fauna that live in vertical ecosystems. Other efforts center upon determining to what extent fixed climbing anchors have been used in the developed zone, the backcountry transition subzone, and the wilderness subzone. These and other field data would be used to help make informed decisions about restrictions or other management responses.

Some of the specific numbers needed to quantify 1998 conditions were unknown at the time the Supplement was prepared. The National Park Service has, however, initiated steps to obtain baseline information to gauge what the 1998 impact levels were.

The National Park Service is currently conducting surveys, based upon stratified sampling methodology, that are being used to approximate the number of bolted routes present within Joshua Tree National Park. Preliminary data indicates that the number of bolted routes in Joshua Tree National Park is approximately 3,475 and the number of bolts is approximately 7,128. No carrying capacity has been established for any area of Joshua Tree National Park for the placement of bolted climbing anchors. Thus, the data on bolted routes would be useful both as a gauge of the different types of climbing experiences in the park and as an indicator of the potential for impacts.

The presence of bolts on a climb does not necessarily mean that the route or the area would be heavily impacted. Other factors, such as the climb's difficulty, relative degree of safety, ease of access, perceived quality by climbers, and proximity to other routes with similar qualities, are more important in determining a route's popularity and frequency of use. The most frequently visited climbs and climbing areas sustain higher levels of resource impacts.

In January 1999, the National Park Service also began a project designed to examine the impacts of social trails in heavily used climbing areas and to explore methods to mitigate those impacts. The project identifies high use areas that are heavily impacted by social trails and that would benefit from mitigation. The National Park Service installed vegetation plots to collect baseline information about vegetation diversity, richness, and density. Park staff and volunteers, working with input from the climbing community, delineated access trails. The project also inventories a species of concern, rock pennyroyal (Monardella robisonii), formerly listed as a Category 2 species.

Following the completion of the survey, formations would be periodically sampled to determine if overall numbers of fixed anchor impacts are remaining stable or are increasing. Additionally, baseline data about surface disturbances because of social trailing, disturbance to vertical communities, and impacted plant communities at the base of climbs would be periodically re-evaluated to ensure that impacts do not exceed 1998 levels in wilderness and desired future conditions throughout the park.

Management of climbing in Joshua Tree National Park would be supported by a description of the desired future conditions of the climbing environment. The National Park Service would work with the Climbing Committee to articulate these conditions and would consider the following criteria and other criteria that may be developed later:

- Integrity of natural processes,
- Condition of plant and wildlife communities,
- Condition of soils and surfaces,
- Visual appearance of rock formations,
- Density of climbing routes and bolts,
- Levels of climber visitation to different sites,
- Opportunities for new route exploration,
- Condition of fixed anchors on existing routes,
- Commitment of administrative resources,
- Level of awareness among park visitors of management objectives and strategies,
- Climber and non-climber expectations, and
- Impact mitigation needs and programs.

In general, this plan envisions that the desired future conditions of the climbing environment in Joshua Tree National Park would be improved in those areas where resource impacts are now significant. The plan would also maintain and, under some circumstances, reduce levels of climbing activity to ensure that all park values are preserved.

Climbing Committee

Alternative E recognizes that working with the public to manage this activity is essential. To that end, the National Park Service would establish a climbing committee under the auspices of the Joshua Tree National Park Advisory Commission, established by section 407 of the California Desert Protection Act, to function as a subcommittee of the Commission. The

charter of the Joshua Tree National Park Advisory Commission provides for the creation of subcommittees from among its membership that can be supplemented, when appropriate, by members of the public. The Chair of the Commission, subject to the concurrence of the Designated Federal Officer (the park Superintendent), would determine the membership of the subcommittee.

A sitting member of the Advisory Commission would chair the Committee and representatives of the climbing community, conservation organizations, and other individuals would serve on the Committee. The Committee would function under the direction of and within the parameters established by the National Park Service to provide recommendations regarding the climbing management program.

The Climbing Committee would gather information and conduct research to make recommendations to the Advisory Commission. The Advisory Commission, in turn, would provide recommendations to the park Superintendent. The Climbing Committee would meet the requirements of the Federal Advisory Committee Act (PL 92-463) and its implementing regulations, 41 CFR 101-6.10. All meetings of the Committee would be announced to the public and would be open to the public. The Superintendent, however, remains the ultimate decision-making authority about climbing management in Joshua Tree National Park.

Existing Bolts (Fixed Anchors)

Existing bolts that are deemed unsafe by climbers can be replaced on a piece-by-piece basis without a permit within the park's developed zone and the backcountry transition and wilderness subzones. Existing bolts, which are identified by the National Park Service as infringing upon the wilderness experience of other visitors or wilderness character, should be camouflaged or removed by the climbing community. All bolt replacements and new bolt placements would be with neutral or rock-colored bolt hangers and chains.

Replacement of existing bolts would be accomplished in a manner that removes the old bolt with minimum damage to the rock resource. Whenever possible for the safe replacement of an existing bolt, the existing bolt hole would be used for the replacement bolt. If use of the existing hole is not possible, the old hole would be filled with a natural colored rock material blended with bonding agents to permanently fill the hole.

Power drills would be prohibited in wilderness. Use of power drills in non-wilderness areas would require authorization by the Superintendent under a special use permit.

New Bolts (Non-Wilderness)

The developed zone and the backcountry transition subzone contain the most heavily-visited climbing areas in Joshua Tree National Park. The National Park Service is completing surveys of climbing impact, including the approximate number of bolted routes, in these areas. After this data is gathered, rock formations would be sampled periodically to determine if overall levels of impact, including those related to bolts, are stable or increasing. Additionally, baseline data about surface disturbances due to social trails, disturbance to vertical biotic communities, and impacts to plant communities at the base of climbs would be periodically evaluated to determine if these impacts are within acceptable levels.

Placement of new fixed anchors in the developed zone and backcountry transition subzone would be allowed, except where explicitly prohibited, under an established monitored process that requires climbers to report their intent to place new bolts to the National Park Service. The National Park Service, working with the Climbing Committee, would establish a process for monitoring the placement of new bolts. This process would promote climber education and self-regulation. The National Park Service would complete the inventory of climbing impacts within one year of the adoption of this plan and would identify areas where additional bolts would conflict with other park values or management objectives.

Under the monitored process, new bolted routes in the developed zone and the backcountry transition subzone would not require a permit, but the climber wishing to place additional bolts must complete a checklist of criteria that would be developed by the Climbing Committee. The checklist would require the climber to consider the potential impacts of new bolts on park resources and the experience of other visitors. A positive response to each of the criteria to be evaluated in the checklist would be considered implied approval for placing new fixed anchors. In essence, this is an honor system and would encourage climber investment in park management objectives and priorities.

This checklist would be picked up and, once completed, dropped off at any entrance station, the visitor center, or with a National Park Service employee. It would be forwarded to the Climbing Committee. The Climbing Committee would work with the National Park Service to monitor the rate and locations of new fixed anchor placements to ensure that impacts do not reach unacceptable levels.

While the National Park Service completes the inventory of climbing impacts, there would be a 1-year period during which a permit would be required before new bolts could be placed in the developed zone and the backcountry transition subzone. During this interim period, proposals for new bolted routes would be submitted to the park Superintendent, who would work with the Climbing Committee to evaluate them based upon the criteria developed for the checklist. As part of a proposal to place new bolts during this interim period, the climber would also complete and submit the checklist, which would verify that all criteria for new bolt placements are adhered to.

Following the 1-year interim period, the National Park Service and the Climbing Committee would assess the resource impacts that are related to existing bolted routes. This information would be used to establish an acceptable rate of expansion for new bolted routes, as well as any formal process by which new routes would be approved.

Some of the basic principles for placement of new bolts under the proposed monitored process would include:

- Only a limited number of new bolted climbing routes per year would be allowed.
- The National Park Service would determine a new route bolt "cap." The new route cap could vary from one year to the next, but should always reflect the commitment to keep the cumulative impacts of climbing in the park to acceptable levels.
- The route would not have the potential to lead to significant resource impacts.
- The route would not impact the experience of other visitors.
- The route would be an independent line, a suitable distance from existing routes, or a variation to an existing line that provides an exceptional climbing experience.

The National Park Service would monitor the level of new route and bolt activity in the developed zone and backcountry transition subzone. If the potential for resource degradation would become unacceptable, different management actions would be necessary.

Bolted routes in the developed zone and the backcountry transition subzone would be evaluated to identify areas where existing fixed anchors have resulted in unacceptable impacts to resources and/or the visitor experience. High densities of bolts and trampling of vegetation at the base of climbs require management prescriptions. These prescriptions would include, but not be limited to, relocation of specific bolts, relocation of approach and descent routes, permanent or temporary closures, etc.

New Bolts (Within Wilderness)

Under the 1964 Wilderness Act, wilderness is a landscape where the imprint of man is "substantially unnoticeable," and where natural processes can operate freely. Wilderness is an area that retains its primeval character and provides outstanding opportunities for solitude or a primitive and unconfined type of recreation. Man's imprint remains substantially unnoticeable. The National Park Service is required by law to preserve the character and many natural and social values of Joshua Tree National Park's designated wilderness.

The Wilderness Act provides a major exception to seven of the nine prohibitions listed "…to meet the minimum requirements for the administration of the area for the purpose of this Act." Thus, the permanent installation of bolts in wilderness may be considered an exception to the prohibition of installations in wilderness if the bolts contribute to the administration of the area for the purpose of wilderness. Trails through wilderness can provide for user safety and confine impacts to defined areas as they provide access through wilderness and provide for the enjoyment of wilderness itself. The installation of bolts can provide for climber safety, limit impacts, and provide access to climbs of exceptional quality that enhance the user's ability to experience a primitive and unconfined type of climbing experience.

This plan aims to keep the cumulative impacts of rock climbing in Joshua Tree wilderness at or below 1998 levels. Research projects initiated in 1999 would continue to be conducted to determine current levels of social trails, impacts on vegetation and wildlife, and the presence of bolts in park wilderness.

There are many climbing routes already established in the park's wilderness. The number of bolted routes in wilderness alone is less important than the cumulative levels of resource impact associated with climbing those routes. However, wilderness is a finite resource, and continued unregulated placement of bolts in Joshua Tree National Park's wilderness is unsustainable.

The National Park Service must approve and issue a permit for new bolted routes in wilderness. The National Park Service would determine if additional routes that require fixed anchors were justified. The National Park Service would work with the Climbing Committee to more formally describe the criteria, which must be satisfied, before a new bolted route can be approved and a permit issued.

Climbers wishing to establish new bolted routes in wilderness would present an application to the Climbing Committee, which would review and make a recommendation for the Advisory Commission to submit to the Superintendent for approval or denial. Park staff would review the proposal for consistency with other management objectives and would ascertain that the new route would not conflict with sensitive resources and the preservation of wilderness character. Most importantly, the proposal would be evaluated in terms of its potential to increase or reduce the cumulative impacts of climbing in the wilderness. If all the relevant criteria were satisfied, the Superintendent would issue a permit for the new route. While the Climbing Committee would play an important role in reviewing proposed new routes, the National Park Service would retain the sole responsibility for issuing permits.

Before issuing a permit, the National Park Service would review any new route proposal to determine:

- that the proposed route would have the potential to enhance the user's ability to experience a primitive and unconfined type of climbing experience that is consistent with an encounter with wilderness,
- that the proposed route would not have potential to lead to resource impacts,
- that the proposed route would not conflict with the protection of wilderness values,
- that the proposed route would have minimal impact on the experience of other wilderness visitors, and
- that the proposed route would be an independent line, suitably distant from existing routes, or a variation to an existing line that provides an exceptional climbing experience.

These and any additional criteria would have to be met prior to approving the placement of new fixed anchors.

Existing bolted routes would not necessarily have to be removed before additional bolted routes could be established in Joshua Tree National Park wilderness. No new bolted routes, however, would be permitted if they would increase the cumulative levels of impacts to the wilderness resource beyond those estimated for 1998. A "cap" on the number of bolted routes that may be placed in wilderness during any year would be established and reviewed annually. The National Park Service would work with the Climbing Committee to determine what this cap should be from year to year, but under all circumstances the goal would be to protect park resources and values.

The National Park Service could authorize placement of new fixed anchors not associated with a new route to reduce other climbing impacts and/or to address climber safety issues. Such proposed placements, initiated by the climbing community, should be submitted to the Climbing Committee.

No new routes requiring fixed anchors should be permitted within the "Fixed Anchor Free Zone" (see Fixed Anchor Free Zone section).

In conjunction with the Climbing Committee, the National Park Service would evaluate all bolted climbing routes in the wilderness for appropriateness and for impacts to the resource and wilderness experience. Fixed anchors determined to be highly visible, too close to sensitive resources, or in other ways degrade the wilderness experience, would be camouflaged or removed. Replacement of all visually intrusive belay/rappel anchors (slings, webbing) would be made using neutral or rock-colored anchors.

Access Trails

The lack of designated trails to provide access to climbing areas from parking locations to rock faces has resulted in a network of "social trails." The National Park Service would formalize a process to inventory social trails, designate the minimum number of trails needed to access climbing areas, place physical barriers and signs to protect sensitive resources, etc.

Base of Climbs

Areas at the base of climbs also receive intensive use and have degraded soil and vegetation resources. The National Park Service would survey the base of popular climbs to evaluate any restoration, protection, or additional management actions that may be needed.

Chalk

The use of gymnast's chalk has degraded some of the park's scenic resources. In some locations, these markings disrupt the natural patterns of rock and lichen. Although chalk marks in most locations are rinsed off by rain part of the year, some chalk deposits persist, especially under overhangs and on the most popular routes. The National Park Service, with the Climbing Committee, would work with climbers to coordinate voluntary chalk clean-ups and develop protocols for using chalk.

Fixed Anchor Free Zone

This zone would preserve some areas of the park as completely unaffected by the presence of fixed anchors. No type of fixed climbing anchor would be placed. All existing fixed anchors in these areas would be removed. The National Park Service would work with the Climbing Committee to develop a timetable to remove fixed anchors and to publicize the restrictions on climbing in this zone.

When evaluating an area for designation as a fixed anchor free zone, the following would be considered:

- benefits to visitor experience, · protection of natural, cultural, and scientific resources,
- popularity and historic use of the area to climbers,
- concentration of established routes in the area and potential for new route exploration, · uniqueness of the rock formations,
- sensitivity of resources, and

- conflicts with other user groups.

Fixed anchor free zones would include the Coxcomb Mountains; the Little San Bernardino Mountains (excluding that portion of the range directly east of Covington Flat); the Hexie Mountains (excluding the Stirrup Tank area); the Cottonwood area and other areas east of the Pinto Basin Road; the Pinto Mountains (excluding the areas around Belle and White Tank Campgrounds); and rock formations which form the corridor along the Nature Trail providing access from the parking lot to Barker Dam (not including the major formations that are merely visible from Barker Dam Nature Trail)(figure 8).

Other Climbing Management Guidelines

Closures in certain areas could be enacted to protect threatened or endangered species, nesting birds, cultural resources, and vegetation. Climbing would not be permitted within 50 feet of any prehistoric or historic rock art site or other cultural resource. Removing vegetation from cracks (route cleaning) would be prohibited.

The chipping and gluing of new holds would be prohibited. Using the park is not a risk-free experience. The National Park Service cannot guarantee the safety of park users. The National Park Service would not maintain any climbing routes or associated climbing hardware and software nor would it provide supervision or climbing instruction. The National Park Service would not assume responsibility for the condition of climbing terrain, routes, nor the acts or omissions of climbers. The National Park Service explicitly disclaims all responsibility for the safety of equipment, bolts or anchor systems in the park.

Climbing exclosures could be created in which climbing would be excluded to provide a control area for the study of the climbing impacts. Authority for closures is granted in 36 CFR 1.5. Incidental business permits would not be issued for commercial climbing groups in some areas to protect visitor experience, resources, or both.

AUTOMOBILE CAMPING

Automobile camping would be allowed only in designated campgrounds identified in the General Management Plan, all of which are in the developed zone of the former monument. No new campgrounds would be constructed on the land added to the park in 1994. The National Park Service has the option to initiate a study in the form of an environmental assessment for an additional 4-wheel/primitive camp in the new lands in the Little San Bernardino Mountains. Automobile camping would not be allowed along dirt roads. The land added in 1994 would be managed in the same way and to the same standards as the land in the former monument.

GROUP SIZES FOR BACKCOUNTRY CAMPING

Because there are different expectations for day and overnight use, limits would be imposed on the size of groups that enter the natural zone only for overnight use. The group size limit in the backcountry trans-ition subzone would be 25 and the wilderness subzone would be 12. The Superintendent would retain the discretion to adjust numbers based upon impacts to the resources or special needs. The Superintendent would also retain the discretion to monitor day use and to establish group size limits for day use.

Backcountry overnight group camping would be permitted anywhere in the backcountry transition and wilderness subzones that is otherwise open to the public and that is more than 1 mile from an open road and 500 feet from a designated trail or a natural water source. The new proposed action would not subdivide the backcountry transition and wilderness subzones into smaller zones or impose limits on the number of parties permitted in each subdivision at any one time.

Commercial Services and Overnight Use

Alternative E would continue to authorize issuance of incidental business permits for guide services (hiking, climbing, equestrian, nature experience) for the wilderness subzone. The Wilderness Act, section 4(c), prohibits commercial enterprises in wilderness, but section 4(d)(6), permits com-mercial services to the extent necessary for activities that are considered proper for realizing recre-ational or other wilderness purposes of the wilderness. Commercial guiding services fit the description of section 4(d)(6). The Wilderness Act provides no exceptions under which com-mercial services could engage in activities specifically prohibited by section 4(c) of the Wilderness Act, such as building roads or structures or using motor vehicles. The group size limits proposed would also apply to incidental business permittees. If a permittee proposes to camp in a zone with a group larger than permitted for that zone, the permit would specify that the large group would be divided into smaller groups to meet the limits. Such smaller groups would have to camp at least 1 mile apart.

AREA CLOSURES

Restrictions on overnight use in the back-country transition and wilderness subzones for the following areas would be as follows (see figure 9):

- Cultural Sites - Keys Ranch (640 acres), Lost Horse Mine Site (80 acres)

- Water Sources - Lost Palms and Munsen Canyons (3,840 acres), Buzzard Springs (2,640 acres), Rattlesnake Spring (2,640 acres), Smith Water Canyon (1,280 acres), Coxcomb Adit (2,640 acres), Stubbe Springs (5,120 acres)
- Land Areas - Wonderland of Rocks (30,053 acres), Pushawalla (7,680 acres)

Most of these restrictions would protect areas important to bighorn sheep lambing and watering. They would also prevent impacts associated with overnight camping. The Keys Ranch site would be closed to the public except when accompanied by a National Park Service guide. The areas that are closed to overnight use would comprise 56,613 acres, or 7 percent of the park.

ARTIFICIAL WATER SOURCES

Four major artificial water sources in the park were installed primarily for the benefit of bighorn sheep (Ovis canadensis nelsonii). Those water sources, Pine City, Russi's Rocks, Coxcomb, and Pushawalla (also known as Pinto Wells, not to be confused with the MWD Pinto Well), are shown in figure 10. Russi's Rocks and Coxcomb were constructed on BLM nonwilderness land before 1986. The National Park Service constructed the Pine City guzzler in 1970 and the Pushawalla guzzler in 1978.

All four of the artificial water sources are now in legislative wilderness (Pine City, Russi's Rocks and Coxcomb) or potential wilderness (Pushawalla). A determination must be made

- if there is a policy justification for habitat mani-pulation in the park,
- if wildlife has developed a dependency upon these guzzlers, and
- if there could be an exception to Wilderness Act prohibitions on structures and installations for the artificial water sources.

Habitat Manipulation

National Park Service (NPS-77) policies on animal management direct that "natural processes would be relied upon to control populations of native species to the greatest extent possible." Artificial water sources are a form of habitat manipulation. In desert ecosystems, water is a crucial limiting factor to populations. As a general rule, habitat mani-pulation for management of native animals is permitted if the species are federally listed as threatened or endangered species, which the desert bighorn sheep is not. Habitat manipulation is also allowed to restore disturbed or altered habitat.

The new proposed action recommends that each functioning, artificial water source in the park be examined to determine if it supports bighorn sheep and if bighorn populations have become dependent upon it. The examination would also determine if the artificial water source were replacing a natural source within the park that has been disturbed or altered by human activities inside or outside the park.

The National Park Service could allow the continued existence of currently functioning artificial water sources if such a source is documented in the resource management plan as necessary to maintain or increase a Federally-listed threatened or endangered species or could help to prevent a species of concern, such as the desert bighorn sheep, from declining below a stable population. The National Park Service could also allow such water sources if they simulate a natural feature, such as a spring or a seep, or a natural process that has been altered or destroyed by human activities, including mining, water pumping, road construction, or fencing, etc.; otherwise, the source could be removed.

None of the sources qualify for the List of Classified Structures. None are on the National Register of Historic Places nor are they eligible for listing.

Wilderness

The maintenance of wild and self-sustaining populations of native animals and plants is part of the National Park Service mission, both under the Organic Act of 1916 and under the Wilderness Act of 1964. Section 4(c) of the Wilderness Act prohibits, among other things, the placement of structures or installations in wilderness areas. Artificial water sources, with pipes, tanks, and associated facilities, constitute structures or installations, but the Wilderness Act allows an exception to the prohibitions of section 4(c) "as necessary to meet minimum requirements for the administration of the area for the purpose of" the Wilderness Act. Under this minimum require-ment exception, the Federal land management agency may engage in otherwise prohibited activities.

The original proposed language for the Joshua Tree National Monument wilderness gave the Secretary authority "…to construct and maintain wildlife watering devices" in the wilderness. Congress chose not to enact this language when it created the Joshua Tree wilderness in 1976. The California Desert Protection Act waived the Wilderness Act prohibitions to make an exception for wildlife management in the BLM-administered wilderness areas (section 103[f]), but the act did not provide a similar waiver for the National Park Service-administered wilderness. Since no other statutory exemptions apply, the only applicable exception to wildlife watering devices in wilderness in the park must be the minimum requirement test

of section 4(c). This test would be applied to all four artificial water sources. Water sources that pass the test could remain; those that fail should be considered for removal.

Because a central purpose in administering wilderness is to maintain wild populations of native animals, the minimum requirement exception would be used to allow the continued existence, installation, and servicing of artificial water sources, but only if such sources are deemed necessary. All four major artificial water sources would be examined to determine if they meet National Park Service policy on habitat manipulation for native animal species dependency upon guzzlers and the minimum requirement for administration of wilderness. The determination of the period of study and scope of the analysis would be made by National Park Service biologists in consultation with other Federal and state agencies. The artificial water sources may remain in place and may continue to be maintained through the course of the study. Exceptions for camping for volunteers maintaining the Pushawalla and Pine City guzzlers, which lie within day use only areas, would be made on a case-by-base basis. Access to the guzzlers must meet the requirements of the Wilderness Act.

Other water sources constructed in the park have either been removed or are no longer functional. A water source was installed at Stubbe Spring (not in wilderness) in 1968 and removed in 1992/1993. A water source was installed in wilderness in 1970 at Rattlesnake Spring in the far northwest corner of the park. The source is no longer functional.

The BLM installed two small game/bird water sources on land that was not incorporated into the park until the 1950 boundary revisions. The sources are B-36 (T4S, R9E, section 3) east of Berdoo Canyon Road and B-37 (T3S, R6E, section 6) between east and west Wide Canyons. Both are in wilderness and no maintenance or inspection has been conducted for at least 20 years. What remains of these sites would be removed as time permits.

DESERT TORTOISE RECOVERY

On June 28, 1994, the U.S. Fish and Wildlife Service (FWS) adopted a recovery plan for the Mojave population of the desert tortoise. The recovery plan recommended that Federal land management agencies designate desert wildlife management areas in which "...some human activities must be restricted." The recovery plan further recommends the kind of activities that "should be prohibited...because they are generally incompatible with desert tortoise recovery" (Recovery Plan 1994).

The new proposed action implements the Desert Tortoise Recovery Plan by immediately designating all of the natural zone of Joshua Tree National Park as a desert wildlife manage-ment area (DWMA) and adopting the management recommendations for DWMAs in the recovery plan, except for fencing.

National Park Service regulations prohibit all but one of the activities (competitive organized events on designated roads) that the Desert Tortoise Recovery Plan describes as incompatible. The list of incompatible activities includes:

- all vehicle use off designated roads,
- competitive organized events on designated roads,
- habitat-destroying military maneuvers,
- clearing for agriculture,
- creation of landfills,
- surface disturbance that diminishes capacity of the land to support tortoises, other wildlife, or vegetation in all areas of the park except the developed zone,
- domestic livestock grazing,
- grazing by feral horses and burros,
- vegetation harvest, except by permit,
- collection of biological specimens, except by permit,
- dumping and littering,
- deposition of captive or displaced tortoises except under authorized translocation research permits, · uncontrolled dogs,
- discharge of firearms, and
- hunting.

The National Park Service would not approve requests under 36 CFR 2.50 for organized motor vehicle racing or timed events. Such events do not meet the standards of 36 CFR 2.50(a). There is no recent record of a request for this activity so the restriction does not affect established uses within the park.

Alternative E would permit organized motor vehicle events that are not competitive or timed, such as motor home caravans, vintage car tours, or group motorcycle tours. The size of such organized noncompetitive events, however, would be a maximum of 50 vehicles; speeds would not exceed the posted speed limits. Prior to National Park Service authorization of such an event, consultation with the FWS as required by 50 CFR part 402 would be completed.

The National Park Service has established speed limits on all of the roads in the former monument under 36 CFR 4.21. The maximum speed limit is 45 miles per hour for paved roads and 25 miles per hour for unpaved roads.

The Distinction between Designated Wildlife Management Areas and Critical Habitat

On February 8, 1994, the FWS published a final rule to designate habitat critical to the desert tortoise. Critical habitat is defined in the Endangered Species Act as "specific areas within the geographic area occupied by the species. . .on which are found those physical or biological features essential to the conservation of the species and which may require special management considerations or protection." Critical habitat is protected under section 7 of the Endangered Species Act, which requires consultation for actions carried out, funded, or authorized by a Federal agency. Designating critical habitat does not create a management plan and does not prescribe specific management actions for the lands designated.

The critical habitat designation of 1994 did not designate any land in Joshua Tree National Monument as critical habitat. The FWS explained that the "...current management policies of...Joshua Tree National Monument provide adequate protection against potential habitat-altering activities because" the monument is primarily managed as a natural ecosystem (59 Federal Register 5825). Although the former Joshua Tree National Monument is not formally designated critical habitat, the FWS found that the monument was essential to the conservation of the species and should be considered in the development of recovery areas.

The FWS did designate critical habitat on BLM land adjacent to the former monument. Portions of that critical habitat were added to the park in October 1994 through the California Desert Protection Act. The Pinto Mountain critical habitat is almost entirely in the park as is a significant portion of the Chuckwalla critical habitat (figure 11).

Designation of critical habitat does not carry out the recommendations of the Desert Tortoise Recovery Plan. The land management agency is responsible for imple-menting the Recovery Plan. The key recommendation of the Recovery Plan for Joshua Tree National Park is the designation of designated wildlife manage-ment areas. The Recovery Plan states "...designation of critical habitat does provide protection of desert tortoise habitat until such time as the Desert Tortoise Recovery Plan is implemented and DWMA management is employed." The Recovery Plan recommended constructing tortoise fencing along roads, in particular, the road from Cottonwood north through the park. The Recovery Plan further stated, "If fencing is not permitted within the Monument, expand the boundary of the DWMA to the boundary of the Monument." This Backcountry and Wilderness Management Plan implements the Desert Tortoise Recovery Plan and designates the natural zone of the park as designated wildlife management area.

THE AFFECTED ENVIRONMENT

THE NATURAL ENVIRONMENT

CLIMATE

The park has an arid upland desert climate. Altitude influences annual extreme temperatures. Eastern lowlands frequently have temperatures above 115°F in the summer. The summer months typically have high temperatures, low humidity, and clear sunny days. Western higher elevations have snow and greater potential for precipitation.

Summer storms from July to September can be very dramatic. Thunderstorms from the southwest or southeast bring high winds, lightning, and heavy rain. Typical summer humidity runs below 20 percent. When storms approach, humidity can climb above 40 percent. Unless a large amount of rain falls, the humidity usually drops to normal within 12 hours. Summer storms tend to be localized. They can cause flash floods, but the majority of the annual precipitation of one to seven inches comes from winter rains.

GEOLOGY AND SOILS

Joshua Tree National Park 's picturesque landscape- mountain ranges, desert basins, and boulders seeming to float in the desert air is all part of the mystique of the park. There are low, generally east west trending mountains interspersed with valleys, a setting characteristic of much of the western Mojave region. A consolidated rock terrain dominates the park, although unconsolidated or poorly consolidated Quaternary surface deposits largely mantle the valleys. Rocks in the park are metamorphic assemblages that include Paleozoic and Precambrian rocks, widespread Mesozoic plutonic rocks that range from gabbro to quartz monozite, and some local Cenozoic basalt. Some Precambrian rocks are more than 800 million years old. In some places, aplite and pegmatite dikes are associated with the granitic plutons. There are cryptobiotic soils in the park.

Millions of years ago the landscape had rolling hills covered with a soil mantle that had developed in a hot, semiarid to humid climate with 80 percent more precipitation and 30 percent less evaporation than is typical today. Changes in climate have resulted in present-day erosion rates that exceed the rates of soil formation. Erosion removes the soil and vegetation from steeper hillsides and creates the huge subangular and spheroidal granitic boulders and boulder piles evident at Hidden Valley, Cap Rock, Jumbo Rocks, and along the Geology Tour Road. The eroded soils are deposited in bajadas and broad channels. The channels, in turn, undergo periodic entrenchment and filling. A period of channel filling may have begun in the 1950s.

A comprehensive mineral survey has not been done. Mines in the park have produced approximately 12,000 troy ounces of gold, 16,000 troy ounces of silver, 33,000 troy ounces of by-product lead, and more than 30 tons of bismuth. Areas near the park with similar geology contain significant deposits of tungsten, manganese, uranium, and thorium-bearing minerals.

Most soils in the park are poorly developed. The eastern half of the park is mostly alluvial with no true soil structure. This granitic fill ranges from boulders to gravel and coarse sand. These are modern deposits consisting of fan gravel and other alluvium deposited by drainage systems. There are no known rare or unique soils in the park.

The prevailing winds of the Mojave and Colorado Deserts are from the west. Much of the wind-blown sand picked up in the open expanses is carried eastward and deposited in a few well-developed dune systems. Pinto Basin has extensive sand deposits but few well-developed dune systems. The only real soil formation is in the valleys of Covington Flats.

The desert soil surface is very sensitive and took hundreds of years to form. A single vehicle can cause damage that can take decades or hundreds of years to heal. During desert maneuvers in the 1940s, armored vehicles left tracks that are still visible today.

NATURAL HAZARDS

The many fault zones in the vicinity, including the San Andreas Fault to the south, cause the high level of seismic activity in the park. The trace of this fault zone, marked by the Indio Hills and numerous springs and palm oases, is clearly visible from Keys View. The oasis at Cottonwood Springs was formed as a result of fault activity, as was the Oasis of Mara, which marks the Pinto Mountain fault that extends from Twentynine Palms into the Morongo Valley. The Blue Cut fault runs from east to west through the Little San Bernardino Mountains from about 0.5-mile south of Keys view into the Pinto Basin. Two large earthquakes (magnitude 6.4 and 7.5) were recorded in 1992 along the Mojave/Landers line, a north-south trending fault perpendicular to the Pinto Mountain fault.

Flash floods are an additional natural hazard. Floods can occur in all of the drainages in the park. Surface flows in most drainages may result from heavy precipitation, primarily during summer storms, and last only a few hours or days.

VEGETATION

The vegetation in the area varies with the topo-graphy, elevation, and gradient. It is estimated that more than 850 plant species live in the park (Adams 1957). Below 3,000 feet, creosote bush, mesquite, yucca, ocotillo, and species of cactus

dominate the Colorado Desert (or low desert). Whenever moisture conditions are favorable, cat's claw, palo verde, and desert willow may also appear. In Pinto Basin, creosote bush, white burroweed, several species of grass, and many species of cactus grow. Occasional sand dunes or basins of loose sand provide a rare habitat in this desert most often dominated by annual grasses following spring rain.

Above 3,000 feet, three basic vegetation associations have been classified: Mojave mixed steppe - Joshua trees, galleta grass, needle grass; Blackbrush scrub - blackbrush, Mojave yucca, Joshua tree, California juniper; and Mojavean piñon/juniper woodland - piñon pine, scrub oak, California juniper. The Mojave Desert is biologically more diverse than the Colorado Desert, probably due greater precipitation. In the Mojave, mixed steppe densities of Joshua trees vary dra-mat-ically. The thickest forests are in Covington Flats, Lost Horse, and Queen Valley areas.

The transition zones between the two deserts provide for an increased biodiversity. Common shrubs such as desert senna, bladder pod, jojoba, desert mallow, paper bag bush, encelia, vigueria, white ratany, and four-o'clock typically dominate them. Other shrubs in these areas include jimsonweed and coyote melon. After adequate rainfall, the deserts can be transformed by colorful wildflower displays - including extensive areas of Bigelow coreopsis, sand verbena, phacelia, evening primrose, blazing star, pincushion, chia, and others. Fan palm oases also appear in the park, primarily in the Colorado Desert portion in the Cottonwood area. A few groves are in the southwest portion of the Mojave Desert, close to Indian Cove and at the headquarters at Twentynine Palms.

WILDLIFE

Large mammals in the park include desert big-horn sheep, mule deer, and mountain lion. Bob-cats are common, as are many small animals. Approximately 350 vertebrate species inhabit the park. The most common are mice and wood rats, white-tailed antelope squirrel, chipmunk, coyote, black-tailed jackrabbit, and two species of fox. There are approximately a dozen species of bats. Invertebrates are also common, but little has been done to systematically inventory them. Two poisonous spiders are found - the black widow and the brown recluse. Another common spider is the nonpoisonous tarantula. Scorpions in the park range up to four inches in length and are among the less toxic varieties. Various centipedes, millipedes, and ticks can be found along with a multitude of other insects, including ants, beetles, dragonflies and wasps.

Only the red-spotted toad and the California tree frog have been reported. Of many small lizards present, the side-blotched is the most common. Additionally, there are two horned lizards and 12 other species. There are 20 known species of snakes in the park.

Large numbers and varieties of birds (more than 270 different species) live in or fly through the park, which is adjacent to a major migratory flyway in the Coachella Valley. During stormy weather, many areas are critical stopover sites for species such as loon, herons, egrets, grebes, and avocets. Birds most commonly seen in the park are the Gambel's quail, black-throated sparrow, scrub jay, common raven, roadrunner, and several wrens. Additionally, the park hosts both summer and winter migratory species. The oases seem to be important stopping places on the western flyway and have semiannual visits of large numbers of turkey vultures.

SPECIES OF SPECIAL CONCERN

The following is a list of endangered, threatened, and candidate plant and animal species that may exist in Joshua Tree National Park. This list was included in a letter dated February 28, 1998, from the FWS. The species listed are known to occur in the park.

One plant species is listed as endangered, the Cushenberry milk-vetch *(Astralegus albens)*. The following plants are proposed endangered (PE) or proposed threatened (PT):

- Munz's onion *(Allium munzii)*—PE
- Triple-ribbed milk-vetch *(Astragalus tricarinatus)*—PE
- Pierson's milk-vetch *(Astragalus magdalenae var. piersonii)*—PE
- Nevin's barberry *(Berberis nevinii)*—PE
- Thread-leaved brodiaea *(Brodiaea filifolia)*—PT
- Parish's daisy *(Erigeron parishii)*—PT

Two additional species are included below, but are not on the FWS list but are of special interest to the National Park Service. These include the Joshua tree *(Yucca brevifolia)* and the California fan palm *(Washingtonia filifera)*.

The following are the endangered (E) or threatened (T) federally listed animal species that may live in Joshua Tree National Park:

- southwestern willow flycatcher *(Empidonax traillii extimus)*—E
- peregrine falcon *(Falco peregrinus)*—E

- unarmored threespine stickleback *(Gasterosteus aculeatus williamsoni)*—E
- bald eagle *(Haliaeetus leucocephalus)*—T
- desert tortoise, Mojave Desert population *(Gopherus agassizii)*—T
- Coachella Valley fringe-toed lizard *(Uma inornata)*—T
- least Bell's vireo *(Vireo bellii pusillus)*—E

The following species are proposed endangered or threatened or candidate species (C):

- peninsular bighorn sheep, which is not known to occur in the park (not to be confused with the unlisted desert bighorn, *Ovis canadensis nelsonii,* which is common in the park)—PE
- mountain plover *(Charadrius montanus)*—C

Of the species listed, the desert tortoise is known to inhabit areas affected directly by the federal actions considered in this plan The park's population is estimated at approximately 12,700 animals (Karl 1988). Tortoise densities range from zero in rugged mountains to 240 per square mile in the Pinto Basin. Most areas of the park contain tortoises.

Other sensitive species meriting conservation/management efforts include:

- Greater western mastiff-bat *(Eumops perotis californicus)*
- California leaf-nosed bat *(Macrotus californicus)*
- San Diego horned lizard *(Phrynosoma coronatum blainvillii)*
- Pinyon rock cress *(Arabis dispar)*
- Crucifixion thorn *(Castela emoryi)*
- California ditaxis *(Ditaxis californica)*
- Foxtail cactus *(Escobaria vivipara var. alversonii)*
- Little San Bernardino Mountains gilia *(Gilia maculata)*
- Spearleaf *(Matelea parvifolia)*
- Robison's monardella *(Monardella robisonii)*
- Salt spring checkerbloom *(Sidalcea neomexicana)*
- Mesquite nest straw *(Stylocline sonorensis)*

WATER

Groundwater follows zones of least resistance along deeply fractured rock masses and deep loose gravel. There are very few known water tables near the surface. By far, the largest amount of groundwater is in the Pinto Basin, one of the extensively alluvial valleys underlying the eastern portion of the park. The U.S. Geological Survey estimates that this basin could yield 300,000-acre feet per year of water in the upper 100 feet of the saturated zone.

More than 120 known water sources, including springs, seeps, wells, and one short perennial stream, occur within the park. Flows from springs and seeps range from seasonal dampness to about seven gallons per minute. The majority of the springs flow from fractures and joints in the igneous and metamorphic basement complex and appear to be supported by local aquifers. Past monitoring indicates that discharge at some springs may be decreasing. The cause is uncertain and may be attributable to climate change, changes in vegetation, sampling error, water pumping and use, or natural variation.

Several oases, encircled by California fan palms, are found in the park and provide a dramatic contrast to their surroundings. These oases symbolize the importance of water in shaping the landscape and sustaining life in the desert.

Three artificial impoundments (Barker Dam, Cow Camp, and Keys Lake) contain significant amounts of water most years. These dams were constructed to supply water for ranching and are now considered eligible for listing on the National Register of Historic Places. The dams also provide an artificial source of water for native and exotic wildlife.

Flash floods can occur in all of the drainages in the park. Surface flows in most drainages may result from heavy precipitation and last only a few hours or days. Though most visitor facilities (with the exception of headquarters) appear to be outside major floodplains, no formal studies have been conducted. Many flood-prone drainages cross park roads.

The State of California recognizes both appropriative and riparian water rights. Appropriative water rights are considered property rights where the party who first appropriates the water and applies it to a beneficial use has a prior right of use against other appropriators. Riparian rights are associated with lands adjacent to a stream or other body of water. They

include the right to divert and use water on the land, but not to store it. Riparian rights also cannot be lost due to non-use. The United States is entitled to riparian rights the same as any other landowner. However, for non-reserved lands, the riparian rights of the United States are subordinate to the rights of appropriators established under State law (Dunning, 1991).

California separates ground water into "percolating" ground water, or water that flows in a known and definite channel or is the underflow of a stream. The second case requires a Statement of Water Diversion and Use for a riparian use (use overlying land) or a permit for an appropriative right (use not overlying on land) (Johns, 1993). If the water is considered percolating, the California State Water Resources Control Board has no jurisdiction over the water withdrawal.

The United States is entitled to Federal reserved water rights for portions of the park which have never been out of the public domain or Federal ownership. The quantity of water reserved would be that amount necessary to accomplish the purposes for which the land was reserved. Joshua Tree National Monument was established on August 10, 1936 to protect various objects of historical and scientific interest (Proclamation 2193, 50 Stat. 1760) and was enlarged on September 25, 1950 (64 Stat. 1033). Joshua Tree would have Federal reserved water rights with these priority dates for National Monument purposes. On October 31, 1994, the California Desert Lands Protection Act of 1994 enlarged and redesignated Joshua Tree as a National Park. Federal reserved water rights for wilderness and expanded park purposes are addressed in this Act and these new rights would have a priority date of October 31, 1994.

Public Water Reserve 107 (Executive Order of April 17, 1926) ordered "that every smallest legal subdivision of the public land surveys which is vacant, unappropriated, unreserved public land and contains a spring or water hole located on unsurveyed public land be, and the same is hereby, withdrawn from settlement, location, sale, or entry, and reserved for public use…" Joshua Tree may be entitled to Federal reserved water rights for springs and other water sources with priority data of April 17, 1926.

All natural water sources, including seeps and springs, are essential to the purpose for which the monument was originally reserved in 1936 and 1950 and the purpose for which the park was created in 1994. Although there are no natural free-flowing streams or other bodies of water in the park, the springs, seeps, and intermittent natural storm flows are necessary to maintain the natural system values of vegetation, wildlife, and scenery that are the fundamental purpose of the reservation. Without the presence of such water, the biotic components would wither away, and the historic elements would lose integrity. Without all such water, the purpose of the park reservation would be entirely defeated.

Quality of both ground and surface water is essen-tially unaffected by sources outside of the park since the majority of the land is at a higher elevation than its surroundings, and no water flows in from outside sources. There have been documented increases in metal contaminants in ephemeral pools created by seasonal rainfall. This is probably due to an increase in airborne pollutants.

AIR QUALITY

The wilderness area of Joshua Tree National Monument was designated as a class I airshed by the Clean Air Act (CAA) amendments of 1977. Under the CAA amendments of 1990, any addition to a class I wilderness is also made part of the class I area. Thus, the 1994 additions to the Joshua Tree wilderness are class I areas. This classification allows the least incremental increases in particulate and sulfur dioxide pollutants. The CAA also imposes an affirmative responsibility to protect the air quality related values (including visibility) of class I areas. Federal land managers have an "affirmative responsibility" to air quality related values in their class I areas. These values include visibility, terrestrial and aquatic flora and fauna, and historic and archeological resources.

Joshua Tree National Park is located within both the Mojave Desert Air Quality Management District (MDAQMD) and the South Coast Air Quality Management District (SCAQMD). The Joshua Tree portions of MDAQMD and SCAQMD currently exceed Federal and state ozone standards and state particulate matter standards. They are also expected to exceed the new fine particulate matter standards as well as the new 8-hour ozone standard.

Joshua Tree National Park has had some of the highest recorded levels of ozone for a national park. The ozone level exceeded the national standard of 125 parts per billion (ppb) for ozone 9 times during 1997 and 17 times during 1998, and it exceeded the California standard of 95 ppb 54 times during 1997. Both nitrate and sulfate wet deposition are high when compared to other parts of California. The annual average for nitrate and sulfate in Joshua Tree National Park in 1997 were 4.24 micrograms per cubic meter (mg/m3) and 1.25 mg/m3, respectively. Joshua Tree National Park has exceeded the standards for NOx emissions during 1997 and 1998 and currently has the worst air quality for a park unit in the National Park system (more days exceeding standards for several air pollutants and haze than any other National Park).

Summer months have the worst levels, and visibility is frequently impaired. During the winter, air quality is generally better when the prevailing airflows are not from the Inland Empire and Los Angeles Basin. The San Gorgonio and San Jacinto Mountains can form a barrier to the air pollution from Los Angeles with pollutants filtering in from the southwest to northeast.

Very small amounts of air pollutants are generated in the park and are primarily from automobiles and dust on roads. Automobile exhaust and emissions from diesel generators contribute only minor amounts of pollutants. Vehicle traffic on

park roads, especially the unpaved roads, is very light and probably only contributes slightly to particulate emissions. The National Park Service removed two diesel-powered generators from the remote Cottonwood facility and replaced them with a 21-kw photovoltaic power system. The National Park Service's motor vehicle fleet is phasing in compressed natural gas and electric-powered vehicles.

Visibility is a significant air quality-related value of Joshua Tree. The park contains several magnificent desert vistas, such as a 360º panorama from Ryan Mountain. Many subtle earth colors are displayed in the desert. The beauty of the mountains, basins, and rocks depends on perceptible differences in contrast, texture, and color. Standard visual range averages 50 miles and is highest during the winter, lower during fall and spring, and lowest during summer. While natural levels of desert haze associated with fine dust particles is frequently mentioned in historical literature, there is little doubt that most current visual degradation results from human-caused sources.

The park offers a night sky unpolluted by urban lights so that visitors may see the stars as earlier generations viewed them. The brilliantly lit Milky Way, meteor showers, or the colorful glimmer of nearby planets can be seen.

WILDERNESS

Wilderness is, itself, a resource. The Joshua Tree wilderness of nearly 600,000 acres is the largest such area near the urban complexes of southern California. The wilderness offers visitors an opportunity to see an area that is predominantly free of roads, buildings, development, powerlines, and many of the visual intrusions associated with modern life. Remnants of ranching and mining can be found along with the abandoned roadbeds. Wilderness offers solitude, tranquility, quiet contemplation, and freedom to study a place that is substantially unaffected by human activity.

Joshua Tree National Park contains several wilderness units, such as the outstanding geologic area that encompasses the rugged Wonderland of Rocks, a display of gigantic monzonites. The elaborately jointed and eroded quartz monzonite covers several thousand acres. The Wonderland of Rocks is not traversed by any trail; even experienced hikers could easily find themselves disorientation travelling cross-country. Many of the park's most popular climbing routes can be found in the Wonderland of Rocks.

A large portion of the Little San Bernardino Mountains, a magnificent erosional diplay, that possesses a fine desert plant community and the Nelson bighorn sheep range comprises another wilderness unit. This unit spreads from the rugged mountains along the west boundary and extends to the Geology Tour Road. It encompasses such features as Covington Flats, which contains some of the largest Joshua trees in the park, and Quail and Stubbe springs, which serve as water sources for the park's wildlife. Lost Horse Valley, a flat, broad expanse that showcases Mojave desert vegetation, is also found in Wilderness Unit 2, as is another portion of the Little San Bernardino Mountains that forms the backdrop for Lost Horse and Pleasant Valleys.

The expansive Wilderness Unit 3 comprises a large section of the Hexie Mountains, which form a scenic horizon for Pleasant Valley. The major portion of the Hexie Mountains provides the background for Pinto Basin, Pleasant Valley and comprises part of the bighorn sheep range. Again, this wilderness unit showcases Mojave desert vegetation, and the south-facing slopes of the Hexie Mountains support an extravagant display of barrel cactus.

Wilderness Unit 4 contains a small portion of the Cottonwood Mountains and features the Colorado desert vegetation, a subsection of the Sonoran desert. The broad expanse of the Pinto Basin makes up Wilderness Unit 5. The Pinto Mountains to the north form a panoramic backdrop for the Basin. The sheer size of the basin quickly dwarfs man. The encircling mountains and starkness of the basin, void of evidence of man, form lasting impressions of a desert environment. A low ridge of sand dunes bisects the western part of the basin.

The Eagle Mountains to the south of the Pinto Basin contain draws and washes that contain some of the finest palm oases in the park. These unique mountains share vegetation common to both the higher, cooler Mojave and the lower, drier Colorado deserts. Native palm trees can be found growing next to the higher-country junipers. This Wilderness Unit 6 is an excellent example of the transition zone that melds the two great deserts together.

Wilderness Unit 7 found in the arid northeast section of the park encompasses some of the most remote, least traveled areas of Joshua Tree National Park. The Coxcomb Mountains with their display of majestic, craggy peaks enclose the northeast section of the Pinto Basin.

The California Desert Protection Act of 1994 added several sections of wilderness (figure 3). These new desert areas completed the ecological units in the Coxcomb and Eagle Mountains and provide added protection to the park's wildlife, particularly the threatened desert tortoise and the bighorn sheep.

NATURAL QUIET

In many parts of the park, the dominant sounds are of wind, rustling vegetation, and animal calls. In a study of ambient sound pressure levels (SPL) in the California desert in 1979, researchers found that naturally occurring sounds ranged from 14 "A-weighted decibel scale (dBA) on a still morning with minimal biotic activity to a high of 66.0 dBA at wind speed of 15 to 25 km/hr. In general, the desert is a quiet place; more than 90 percent of the measured natural SPL's did not exceed 45.5

dBA and none of the animal sounds that were measured produced sounds greater than 56.0 dBA. More than 90 percent of animal sounds were below 50.5 dBA (Bondello and Brattstrom, 1979).

Much of the park, especially the more remote wilderness, is free of machinery, motor vehicles, and associated noises, but even in the remote places, natural quiet is broken by overflights of low-flying military aircraft and the higher commercial airlines. Quiet is also threatened on a more sustained basis by proposals for large-scale developments on the boundary, such as the Eagle Mountain landfill.

CULTURAL ENVIRONMENT

ARCHEOLOGY

Joshua Tree National Park has been the focus of sporadic archeological investigations for more than 60 years, but the sequence of prehistoric human occupations is still imperfectly understood. Fluted projectile points of the Paleo-Indian period have been found in the region. These artifacts are thought to be associated with a tradition of big-game hunting that may date back to 9000 B.C. Artifacts of a slightly later period, the early Archaic, which include those of the Dieguito and Lake Mojave complexes, were also found in the region. There may be evidence at Joshua Tree National Park of Paleo-Indian or early archaic occupations.

There is good evidence of human occupation from the Middle and Late Archaic periods, which together range from 3000 B.C. to A.D. 1100. Artifacts of the Pinto complex dating from about 3000 B.C., such as Pinto projectile points, are well known by archeologists. They come from the Pinto Basin type site and from other sites in the park. Type sites are those with distinguishing characteristics of an identified and defined cultural complex. Patayan occu-pation or influence from the lower Colorado River region, associated with brown and buff ceramics, may have begun as early as 750 A.D. in what is now the park. Fitting the archeology into categories like Middle Archaic or Patayan assumes significant changes in life-ways, economy, and social organization. A more useful model is the Desert Culture or Desert Archaic, an early, successful, and long-lasting adaptation to desert living. This mode of living is presumed to have been characterized by small, mobile bands and by participation in a mixed hunting and gathering economy. Although milling equipment, the bow, ceramics, and perhaps even horticulture were added to the culture over time, the basic configuration of the culture may have remained relatively stable.

After about 1000 A.D., occupation of the area increased considerably, judging from the frequency of sites that date within the last thousand years. At the time of European contact, the boundaries of three American Indian groups - the Cahuilla, Chemehuevi, and Serrano - intersected at points now in the park. The descendants of these Indian groups continue to live in the area.

HISTORY

Exploration, cattle raising, homesteading, and mining took place in what is now the park. The first European to enter the area was a Spanish army officer, Pedro Fages, commander of California's Spanish forces, who described the date palms, probably Joshua trees, that he saw as he crossed the Mojave Desert in 1772. There were more Spanish expeditions in the area in 1774 and 1776. The southern periphery of the present park was briefly explored from December 1823 through Janu-ary 1824 by Captain Jose Romero, representing the government of Mexico, who was dispatched to find and eval-uate for overland travel the east-west Cocopa-Maricopa Trail from San Bernardino to the Colorado River. This route of Cocopa-Maricopa Indians was one of the major pre-European contact Indian trails in the area. Another such trail was the Mojave, located farther north, which also extended from San Bernardino to the Colorado River, connecting with north-south trails along both banks of the river.

Jedediah Smith made an overland journey to California in 1826. He was a fur trapper with the Rocky Mountain Fur Com-pany who visited the Mojave Indian villages along the Colorado River and trekked westward over the Mojave Indian trail toward the Pacific Ocean. There were few other early expeditions in the 1830s and 1840s. During the gold strike of 1849, gold seekers from the east passed through on their way to central California.

In 1865, the first mining claim in what became the park was filed for the Jeff Davis mine in Rattlesnake Canyon. Mining, mostly for gold, continued in or near the park into the 1960s. Mining over the years brought adits, diggings, shafts, equip-ment, structures, and roads to the landscape. It also added sources of water as wells were dug or pipelines were constructed from water sources to process ore. As many as 3,000 shafts or other diggings remain.

The first attempts at cattle raising took place in the area in the early 1860s in the Mojave where stockmen grazed large numbers of cattle in the desert and along the river or wash bottoms in the winter. The high desert had reliable grazing. The galleta grass and succulent saltbushes provided good browse in the winter and spring. The first stockman to graze cattle in what is now the park apparently was Oliver Smith, whose Texas long-horns grazed near Quail Springs from about 18701876.

Cattle raising peaked during the 1920s, about when local homesteading was beginning. Grazing continued through the 1940s and may have lasted longer. William F. Keys (18791969), who was an entrepreneur, miner, and rancher, lived most of his life on the home-stead known as the Keys-Desert Queen Ranch. He is known to have maintained a cattle herd of about

100 head in the early 1940s. He stayed on the ranch until his death in 1969 and may have had some cattle into the 1960s.

Cattle raising (which included open-range grazing, ranching with corrals, fences, and even some rustling in the hidden canyons and valleys) brought dams, reservoirs, and wells plus buildings and other structures that often revealed a highly individualistic, entrepreneurial adaptation to the desert. Evidence of ranching remains at several sites, including Keys Ranch (the Desert Queen Ranch).

ETHNOGRAPHY

The ethnography and ethnohistory of Joshua Tree National Park involves the traditional life and cultural history of three American Indian groups who lived in the area at the time of European contact. The territories of these groups - the Cahuilla, Chemehuevi, and Serrano - met at a point now in the park. They were mostly hunters and gatherers, although each group also practiced some horticulture. Other groups such as Mojave and Maricopa traders east of the park regularly passed through on treks back and forth to the coast.

The Cahuilla, Chemehuevi, Mojave, and Serrano tribes maintain strong interest in the park. The Agua Caliente band of the Cahuilla Indians, the Cahuilla Tribe of the Morongo Indian Reser-vation, the Fort Mojave Indian Tribe, the Chemehuevis and Mojaves of the Colorado River Indian Tribes, the Serrano Tribe of the Morongo Indian Reservation, and the Twenty-nine Palms band of Mission Indians are in regular contact with the park. The Indians have requested permission to gather plants for food, medicine, and personal (not commercial) crafts; meditate and pray in sacred areas; or study the archeological and ethnographic artifacts in the Campbell collection and other park collections to confirm more of their heritage and pass it on to young people.

The American Indian Religious Freedom Act (42 USC 1996) states that "henceforth it shall be the policy of the United States to protect and preserve for American Indians their inherent right to freedom to believe, express, and exercise the traditional religions of the American Indians, Eskimos, Aleut, and Native Hawaiians, including but not limited to access to sites, use and possession of sacred objects, and the freedom to worship through ceremonials and traditional rites." This statute does not create additional rights or change existing authorities. As a matter of policy in keeping with the spirit of the law, however, the National Park Service will be as unrestrictive as possible in permitting Native American access to and use of traditional sacred resources for customary ceremonials, provided that such use does not cause permanent damage to the integrity of the resources.

The California Desert Protection Act (section 705) provides that "upon the request of an Indian tribe or Indian religious community," the National Park Service "shall temporarily close to the general public use of one or more specific portions of the park system unit or wilderness area in order to protect the privacy of traditional cultural and religious activities in such areas by Indian people. Any such closure shall be made to affect the smallest practicable area for the minimum period necessary for such purposes." Congress has conferred this authority only upon a handful of Federal land areas throughout the nation (California Desert Protection Act, El Malpais National Monument and Conservation Area [New Mexico], and the Jemez National Recreation Area [New Mexico]).

The California Desert Protection Act directs that the Secretary of the Interior "shall ensure access to . . . park system units and wilderness areas by Indian people for . . . traditional cultural and religious purposes." The act also states that if access is required in a wilderness area, such access will be "consistent with the Wilderness Act."

ARCHEOLOGICAL SURVEYS AND HISTORICAL STUDIES

There have been about two dozen archeological surveys conducted in the park, ranging from early exploratory work in the 1920s and 1930s to more recent small-scale, development-oriented surveys. A recent survey of 75 miles of road corridor provided a lengthy transect of the various environmental zones of the park (Erwin 1985), but less than 10 percent of the park has been surveyed systematically to modern standards. As of 1989, 250 archeological sites had been recorded. Many historical studies have been completed.

Types of Sites

Archeological sites of all periods tend to be small and usually are not obvious. Most frequent are the remains of small campsites. These are found often as eroded open sites, more rarely as buried open sites - such as the remains at the Oases of Mara - and occasionally as rock shelter sites. Sites are marked by scatters of chipped stone, ground stone, and infrequent ceramic sherds. There may also be small rock rings, rock alignments, cairns, bedrock mortars, and grinding sticks. The presence of midden (dark, organic, and artifact- rich deposits) has been noted. A considerable amount of rock art has been recorded in the park. Artifact caches, remnant trails, and quarries of chippable stone are occasionally found.

The historic Euro-American sites, including ranches, homesteads, and mines, probably have archeological components. These probably include trash dumps, buried structures, unrecorded features, and other aspects that should be investigated.

National Register Status

Six historic period sites have been placed on the National Register of Historic Places: Barker Dam, Cow Camp, Desert Queen Mine, Keys-Desert Queen Ranch, Ryan House and Lost Horse Well, and Wall Street Mill. Twentynine Palms Oasis (Oasis of Mara) as an archeological and historical site and six additional historical sites have been formally determined

to be eligible for the national register: Cottonwood Oasis, Eagle Cliff (Black Eagle) Mine, Eldorado Mine and Mill, Lost Horse Mine and Mill, Pinyon Mountain Historic Mining District, and Pinto Wye Arrastra. All national register sites or sites determined to be eligible for listing on the national register are in the old national monument part of the park. No sites or districts that are solely archeological have been formally determined to be eligible for listing on the national register.

REGIONAL AND ADJACENT LAND USE

The proximity of Joshua Tree National Park to the Los Angeles metropolitan area and to a large military base generates a steady flow of visitors. The recreational demands of southern California are enormous. For people who are subjected to automobile congestion, air pollution, and dis-appearing open space, the desert offers rest and relaxation, fresh air, clear skies, outdoor recre-ation, solitude, and contemplation. Many return frequently for specific recreational activities.

Some people have traditionally viewed California desert environments as wastelands, and the park has been damaged and abused because many users are not aware of their fragile nature. The counties within a 100-mile radius of the park include Los Angeles, Orange, Riverside, San Bernardino, Imperial, and San Diego. These counties contain more than 18 million people, and the population continues to grow. Over 10 million acres of Federal and state land in these counties are available for recreation.

Some land adjacent to the park has been subdivided into small desert communities for homesites. Morongo Valley, which parallels most of the park's north boundary, is almost completely subdivided into homesites and desert homesteads. Other desert homesites extend along the southwestern boundary along the foot of the Little San Bernardino Mountains. Several new large developments, which abut the southern boundary of the park at the outlets of Fan and Deception Canyons, are being proposed. Farther to the south lies the Coachella Valley, an irrigated agricultural area of date palms, vineyards, and citrus groves. The valley is also the site of Palm Springs, Palm Desert, Rancho Mirage and other internationally recog-nized destination resorts. The mountainous portions along the boundaries are largely in the public domain, where the primary use is vehicle-oriented recreation and BLM-administered wilder-ness (Sheephole) and one area of critical environmental concern (Big Morongo). The largest area of mining claims and associated mining-related disturbance near the park is the Eagle Mountain Mine area, which is in a salient that is surrounded on three sides by the park. The mine area is now the subject of a reclamation proposal for a municipal solid waste landfill.

The proposed landfill would include the open mining pits and nearby canyons in the Eagle Mountain mine area. Its proximity poses some obvious threats to the adjacent wilderness. Blowing trash, dust, noise, and introduction of exotic plants and insects could impair the fragile setting. The operations would present other, less obvious, threats to the natural ecosystem. Household trash attracts scavengers such as ravens and coyotes, which can flourish in such a setting. Ravens are known to prey on young tortoises. The largest known population of tortoises in the park is within six miles of the proposed landfill.

Urbanization and incompatible land uses along the boundary can cause profound deterioration of resources. Examples include air pollution, groundwater pumping and depletion, noise and light pollution, alteration of natural systems along the boundary, incursion of domestic pets in to the park, and visual intrusions.

VISITOR USE

ACCESS AND CIRCULATION

Access to Joshua Tree National Park is from two major east-west transcontinental arteries. Visitors enter directly from Interstate 10 through the Cottonwood entrance by exiting 24 miles east of Indio and traveling north 1 mile to reach the south boundary. Travelers from the west on Interstate 10 leave the freeway at State Route 62 - 16 miles east of Banning and travel north and east to the towns of Yucca Valley, Joshua Tree, and Twentynine Palms. Travel is over four-lane paved highways.

The park is linked to Interstate 40 through Amboy, 50 miles to the north. Travel from Los Angeles, 120 miles to the west, is over Interstate 10 and State Route 62. The latter route extends east to Parker, Arizona, on the Colorado River.

Visitors traditionally enter the park through one of several park roads, some of which connect with paved roads in the park. The four paved road entrances account for almost all of the total visitation, with about 70 percent using the Joshua Tree (west) and Twentynine Palms entrances.

Circulation through the park is over 289 miles of roads, 80 miles of which are paved. With the exception of the 5 miles of road in Indian Cove, Black Rock Canyon, and Fortynine Palms area on the north side of the park, all paved roads in the park are connected.

VISITATION

The deserts of California have experienced dramatic human development in the last 50 years. Joshua Tree National Park lies within a 3-hour drive of more than 18 million people. Increased populations have meant increased visitation. The park

is 120 miles east of Los Angeles.

Visitation in the park has steadily increased since 1993 to more than 1.4 million visitors in 1998. The change in designation from national monument to national park has expanded attention on the park from a regional to national context. In the past, weekend visitor use by local and regional residents dominated the visitor use patterns.

Now, however, greater numbers of the traditional, family-oriented park users from around the nation come to Joshua Tree National Park as a destination. International visitors comprise an every-increasing percentage of park visitors. Peak visitation occurs during the months of March, April, and May, when 38.9 percent of the people come to the park. About 24 percent of the visitors come during the fall (September through November), 22 percent in the winter (December through February), and 16 percent in the summer (June through August)

VISITOR ACTIVITIES

Despite the fact that Joshua Tree is largely a frontcountry day use destination for most visitors, backcountry use has also increased in recent years (recorded by backcountry camper nights). Activities include hiking, picnicking, rock climbing, interpretive walks and talks, and camping. Only about .5 percent of all of the park visitors spends the night in the park's backcountry. Bicycling has been permitted on public roads, both paved and dirt. The park offers an extensive network of dirt roads that make for less crowded and safer cycling than the paved main roads.

Outstanding opportunities for hiking and exploring on the park's trail system and cross-country exist. The closer examination of two desert ecosystems by foot reveals a fascinating variety of plants and animals. Trails range from the relatively easy nature trails to the longer 16-mile Boy Scout Trail or the strenuous 7.5-mile Lost Palms Oasis. Trail. Cross-country possibilities abound. "Bag peakers" can hike 10 mountains over 5,000 feet in elevation. Other popular attractions include the park's oases and a wide variety of remnants of the gold mining era.

The most intensively used backcountry and wilder-ness areas in the park are in Hidden Valley and the Wonderland of Rocks. These areas provide some of the most popular and diverse rock climbing in the United States, and accessibility to most of the area by car and foot is excellent. Massive boulders and rock outcrops make Joshua Tree National Park a world-renowned rock climbing area. Its reputation brings climbers from throughout the world to the park. Skilled and novice technical rock climbers are attracted to the climbing opportunities. Approximately 5,400 routes exist on 700 rock formations that are concentrated over about 100,000 acres. These formations vary in size and can support from one to 40 different climbing routes.

Equestrian use occurs mainly in the western and higher elevation portions of the park. Numerous trails, created by the passage of stock, criss-cross the area. Most of these trails originate from the Black Rock horse camp, Ryan Mountain horse camp, and the Covington Flats area of the park.

On the new land added to the park in 1994, past recreational use relied heavily on operating four-wheel drive vehicles along a series of unpaved roads and then driving to isolated destinations along those roads for camping. The areas are marked by a system of roads and tracks, associated soil denudation and compaction, and abandoned fire rings and trash. The area was also open to hunting and discharge of weapons. These traditional recreational uses are no longer permissible. Some users continue to operate vehicles in wilderness along desert washes and old roads. Closure signs are often ignored and physical barriers have been surmounted.

DERIVATION OF IMPACT TOPICS

To focus on the most significant impact topics, the issues, alternatives, and impacts were evaluated throughout the planning process. All impact topics, including those raised by the public, were evaluated by the National Park Service and narrowed to include only those of significant environmental concern.

Not analyzed for impacts were climate, natural hazards, biosphere reserve status, external land use, water quality, and water rights where the alternatives would have little or no impact.

Air quality problems in Joshua Tree are asso-ciated with the regional airshed, which contains the second largest population center in the United States. Dust from park roads is not significant in comparison to the regional air quality issues. Although visitation is projected to increase, no proposals under any alternative would significantly alter air quality. Impacts to the surrounding com-munities from the proposed actions in this plan would be minimal and are not further analyzed.

IMPACTS ON VEGETATION AND SOILS

Alternative A - Proposed Action

This alternative would reduce impacts to soils and vegetation by designating a system of trails that would provide recreational opportunities for hikers, mountain bicyclists, and equestrians. While hikers could also hike cross country, many would probably use the designated and marked trails and reduce the proliferation of redundant trails.

This alternative would reduce impacts associated with illegal off-road vehicles by limiting the number of roads that remain open. By confining camping only to established and designated campgrounds, denudation and soil compaction would be limited.

Alternative B - No Action

This alternative would result in increasing compaction of soil and denudation of vegetated areas by allowing multiple unplanned trails created by the repeated passage of foot or equestrian traffic. Any driveable road in nonwilderness would be allowed to remain open, thus continuing the denuded condition of such roads and affording access to many more locations where illegal off-road operations could impact vegetation and soils.

Alternative C - Maximum Protection

Maximum protection would be afforded to soils and vegetation by confining all hiking and equestrian use to designated trails only. No driveable roads on the nonwilderness lands added to the park would be open. Such roads would be reclaimed and revegetated. Camping in the backcountry would be confined to designated and hardened campsites.

Alternative D - Minimum Requirements

No effort would be made to restore vegetation or prevent new impacts caused by hikers, equestrians, roadside campers, or vehicles on nonwilderness roads.

IMPACTS ON SPECIES OF SPECIAL CONCERN

Alternative A - Proposed Action

This alternative would reduce impacts to the desert tortoise by closing several miles of three roads in the nonwilderness land added to the park in 1994. All of the closed roads, as well as the eight allowed to remain open, are located in habitat designated as critical to the desert tortoise. Fewer roads would result in less traffic and fewer areas where tortoises could be run over or collected. Establishing a system of designated trails would tend to encourage the use of such a system rather than cross-country travel. Confining horses to designated trails and corridors would have a similar effect. These actions would benefit the desert tortoise. Removing artificial big game guzzlers for bighorn sheep could reduce the carrying capacity for bighorn sheep near the water source if the guzzler actually supports a bighorn sheep population. Removing guzzlers would reduce bee mortality.

Alternative B - No Action

This alternative would result in increased stress to desert tortoise because compaction of soil and denudation of vegetated areas caused by social trails would continue. All driveable roads in nonwilderness would remain open, thus continuing the denuded condition of such roads and affording access to many more areas where collecting or roadkill could occur. This alternative would not have a negative or positive effect on bighorn sheep.

Alternative C - Maximum Protection

Maximum protection would be provided to the tortoise by confining all hiking and equestrian use to designated trails. No driveable roads on the nonwilderness land added to the park would be designated as open. Such roads would be reclaimed and revegetated. Camping in the backcountry would be confined to designated and hardened campsites. While affording maximum protection to wilderness values, this alternative could impact bighorn sheep that depend on an artificial water source. Even guzzlers that replace a depleted natural source would be removed.

Alternative D - Minimum Requirements

No efforts would be made to manage public use in such a way as to reduce impacts on the desert tortoise. Existing impacts to vegetation and soils and desert tortoise by hikers, equestrians, roadside campers, or vehicles on nonwilderness roads would continue. Networks of dirt roads in critical habitat would remain open, affording more chances for accidental harm to tortoises and illegal taking. More guzzlers could be installed to increase the number of bighorn sheep in the park.

IMPACTS ON CULTURAL RESOURCES

Alternative A - Proposed Action

This alternative would reduce impacts on cultural resources by closing three roads in the nonwilderness land added to the park in 1994. Fewer roads would result in less traffic and fewer areas that are accessible by vehicle where cultural resources could be illegally collected. One cultural resource (Keys Ranch) would be closed to all public access except by guided tour.

Alternative B - No Action

This alternative would result in any driveable road in nonwilderness remaining open, thus affording access to many more locations where illegal collecting could occur. Closures now in effect would remain in place.

Alternative C - Maximum Protection

Maximum protection would be afforded cultural resources by confining all hikers and equestrian use to designated trails.

No driveable roads on the nonwilderness land added to the park would be designated as open to vehicles. Such roads would be reclaimed and revegetated. Camping in the backcountry would be confined to designated and hardened campsites.

Alternative D - Minimum Requirements

No effort would be made to manage public use in such a way as to reduce impacts on cultural resources. There would continue to be random impacts to cultural resources by hikers, equestrians, roadside campers, or vehicles on nonwilderness roads. Networks of roads would remain open, affording more possibilities of accidental harm and illegal collecting. No areas of the park, except Keys Ranch, would be closed to the public to protect cultural resources.

IMPACTS ON VISITOR ENJOYMENT

The effects of the alternatives on visitor use and experiences can be divided into those relating to visitor enjoyment of the park, those impacting visitor distribution throughout the park, and those that impact visitor participation in recreational experiences. Many would result in qualitative changes to the visitor experience rather than a quantitative change, and some of the impacts would result in quantifiable changes. For example, imposing group size limits could benefit the visitor experience of hiking in wilderness - a qualitative change. Closing roads in nonwilderness would actually reduce the number of miles of road available - a quantitative change.

Alternative A - Proposed Action

This alternative would provide for a wide variety of visitor experiences in wilderness and nonwilderness in the natural zone of the park. It would also establish 37 miles of road corridor as part of the development zone. Experiences would range from primitive and isolated camping to operating motor vehicles on rough dirt roads in rugged canyons. Camping would be allowed anywhere in the designated backcountry transition and wilderness subzones. Wilderness experience would be enhanced by discouraging the proliferation of social trails.

Rock climbing would continue throughout the park. The climbing experience in wilderness areas would differ from climbing in the nonwilderness portions of the park. In wilderness climbers would be able to enjoy clean climbing. In nonwilderness climbers could continue to install new bolted routes under permit. Alternative A acknowledges that some routes in wilderness cannot be climbed without the installation of bolts. Wilderness experience would be enhanced by preventing the proliferation of new bolts in rock faces and by reducing access in some places. There would be new opportunities for mountain bicycle use on designated trails in nonwilderness. Equestrian use would be allowed to continue but only on designated trails and corridors. Confining horses to specified trails and corridors would negatively affect the equestrian experience. However, the provision of a better protected and less impacted resource would enhance the horse users' park experience. This alternative presumes that the equestrian is interested in preserving the quality of the park so that it remains a beautiful place to enjoy horseback riding.

Visitor experience would continue much as it is now. Some modifications would be designed to protect the quality of the experience and the integrity of the resources.

Alternative B - No Action

There would be no major changes under the no-action alternative. On the former monument land public use of the natural zone would be unchanged. The land added to the park would continue to be used by campers as if it were still administered by the Bureau of Land Management. All roads in nonwilderness would remain open to motor vehicles. People driving along dirt roads would encounter denuded areas of compacted soils used for automobile camping.

New bolts would be installed for rock climbing anywhere in nonwilderness without NPS management. Social trails would continue to develop. Group sizes for overnight stays in the wilderness or backcountry transition zone would not be imposed. No areas, other than Keys Ranch and those now closed to overnight stays, would be closed to public.

Alternative C - Maximum Protection

This alternative would restrict the range of visitor experiences in Joshua Tree National Park. Hikers would be confined to trails. No trails would de designated for bicycle use. Motor vehicles would be limited to those roads designated as part of the development zone in the former monument. No roads in the nonwilderness portion of the land added to the in 1994 would be open to motor vehicles. Climbers would be limited to clean climbing everywhere in the park, and no new bolting would be permitted anywhere. Extensive areas would be closed for resource protection during the summer. Backcountry campers in the natural zone could only camp in designated hardened sites.

Alternative D - Minimum Requirements

This alternative would the most tolerant of public uses. No limits on group sizes for overnight stays in the backcountry would be imposed. Only one area, Keys Ranch, would be closed to unaccompanied public access. Foot traffic would be permitted anywhere in the park, and visitors would not be encouraged to stay on designated trails. Equestrian traffic would be permitted anywhere. All driveable roads in nonwilderness would remain open. Visitors could continue to drive along open roads in the areas added to the park in 1994 and could set up camp alongside the roads. Climbers could install bolts

anywhere without NPS oversight. Only the use of power drills for bolt installation would be banned in wilderness, as prescribed in the Wilderness Act.

ENVIRONMENTAL CONSEQUENCES OF THE NEW PROPOSED ACTION (ALTERNATIVE E)

DESIGNATED TRAIL SYSTEM

This new proposed action would reduce impacts to vegetation and soils by designating a system of trails for hikers, bicyclists, and equestrians. Impacts would be concentrated upon a hardened or defined trail tread. All social trails not designated as open and part of the trail system would be closed and restored to a natural condition using native vegetation to reduce impacts to the natural resources. A "corridor" concept would be introduced as a trail designation. The corridors would use minimum impact strategies and would not require development of trail tread. Trail corridors would be specifically defined routes of travel that would follow natural terrain, such as canyons, washes, and natural passes. Trail corridors would reduce impacts to soils and not require trail maintenance. If conflicts between user groups occurred, trails and corridors could be closed or trails could be rerouted.

The new proposed action would discourage the proliferation of social trails. Obtaining a backcountry permit would be made easier by adding another backcountry self-registration board and by providing for phone-in permits. Access to remote areas of the park from outside the park boundary would be made easier by eliminating the requirement to park at a backcountry self-registration board.

Equestrian

The new proposed action would restrict equestrian use to only designated trails and trail corridors, totaling approximately 274.5 miles, rather than the existing standard of designated trails and all active washes. Alternative E would include approximately 3.15 miles in addition to the number designated in Alternative A. Trails and corridors would traverse open lands, canyon bottoms, and dry washes. Equestrian staging areas for day and overnight use would be confined to existing disturbed areas within the developed zone. Equestrian trails and corridors would be concentrated in the higher Mojave Desert, ranging in elevation from 2,000 feet to 4,500 feet.

Impacts to soils and vegetation would occur along the trail tread in the form of soil compaction, troughing, and trampling of vegetation. In the event a species of concern is found to be significant along the trail tread, rerouting, temporary closure, or signing the trail would be implemented. Restricting equestrian use to designated trails and corridors, however, would eliminate the proliferation of social trails and therefore confine and reduce associated resource impacts to a small percentage of the park. Overall care and maintenance of the park's trail system would increase.

Confining stock to specified trails and corridors could negatively affect the equestrian experience, but the provision of a better protected and less impacted resource would enhance the stock users' park experience. This alternative presumes that the equestrian is interested in preserving the quality of the park so that it remains a beautiful place to enjoy horseback riding.

Bicycles

A total of 29.25 miles of trails would be designated as open to bicycle use. Bicycle trails follow old mine roads with the exception of a 7-mile section of the California Riding and Hiking Trail between North Entrance and the Pinto Basin Road and the Lost Horse Valley Trail that connects Ryan Campground and the Echo "T" intersection.

A short segment of the Berdoo/Thermal bicycle trail, approximately .5 miles, would be re-routed around wilderness. The new re-routed segment, approximately .67 miles, would follow the path of least impact over the shortest distance to clear wilderness lands. Impacts to natural resources would be minimal. No removal of large plants, such as Joshua trees or Mojave yuccas, would occur. Some small shrubs would be trimmed or removed. The re-routed area has been surveyed for the desert tortoise, and no significant impacts to the desert tortoise would occur.

Any potential impacts to the desert tortoise from equestrian and bicycle use would be mitigated by restricting travel to designated trails, developing a trails brochure, posting signs at trailheads and specific areas of concern, and using volunteer monitors. Continued monitoring and surveys for the desert tortoise would occur.

Stock Use

The plan also designates horse and mules as authorized stock for use in the park. The use of horses and mules as a means of travel has a long and established tradition of historical use in the west. At the discretion of the Superintendent, a study and associated environmental analysis about the implications and appropriateness of introducing llamas as stock animals in Joshua Tree National Park could be initiated. The primary focus of such a study would be resource protection and consistency with the National Park Service mission.

Designation Of Open Roads

This alternative would establish 37.7 miles of road corridors as part of the developed zone. Limiting the number of roads that remain open would reduce the impacts to vegetation and soils along roadways. All roads that would remain open are pre-existing 4-wheel-drive roads that were inherited by the park during the 1994 park expansion. Roads designated as open traverse open flat land, washes, and canyon bottoms. These roads would provide a unique four-wheel drive experience within the backcountry transition subzone. Impacts to resources, consisting of trampled vegetation and soil compaction, would be confined to the roadway. Motorists would be alerted to watch for wildlife, and maximum speeds would be 25 miles per hour. Closing the roads not designated as open and restoring them to a natural condition using native vegetation would further reduce impacts to vegetation, soils, and desert tortoise. Closing three roads in nonwilderness lands added to the park in 1994 would reduce impacts on cultural resources. Fewer areas accessible by vehicle would reduce access for illegal collecting.

A small area in the Little San Bernardino Mountains would be developed to create a parking area at the southern end of Berdoo/Thermal Canyon bicycle trial to provide for loading and off-loading of bicycles. The new proposed action would also provide for future studies for the development of a primitive automobile camp on new park lands within the Little San Bernardino Mountains. The studies would require additional environmental analysis and public review.

CLIMBING MANAGEMENT

This alternative would envision that the desired future condition of the climbing environment would be improved in those areas where resource impacts are significant. The management prescriptions for climbing would reduce impacts to microhabitats, vegetation, and soils along the access trails, at the base of climbs, on climbs, and in wilderness and non-wilderness areas. They would also prevent the degradation to scenic values due to chalk and fixed anchors. All non-designated trails would be reclaimed and signed as closed. Placement and replacement of fixed anchors would be done in a manner sensitive to resources and visitor wilderness experiences and to camouflage their appearance. If fixed anchors were removed, the subsequent hole would be filled with a mixture of natural granulated rock and bonding agent to prevent further damage to the rock.

Prohibiting climbing within 50 feet of rock art and other cultural sites would protect cultural resources. Closures of climbing routes could be implemented to prevent disturbance of sensitive species. Climbing exclosures could be created to provide a controlled area for the study of climbing impacts. The results of such studies would be used to enhance natural resources affected by climbing activities.

The creation of a Climbing Committee would provide users an avenue to present recommendations to the National Park Service about climbing management issues. Existing fixed anchors could be replaced for safety considerations throughout the park. Placement of new fixed anchors in non-wilderness areas would be permitted under a monitored process that would be established with input from the Climbing Committee. Some basic principles of the monitored process would include consideration of the impacts to the resource and visitor experience of the proposed new route, concern for the cumulative impacts from the placement of fixed anchors, and the new route cap.

New fixed anchors placement in wilderness would be authorized under permit. In addition to the principles listed above, approval of new routes should always reflect the commitment to keep the cumulative impacts of climbing in wilderness to levels at or below 1998 conditions. New routes would not exceed the annual cap limits. Anchor free zones would be designated throughout the park and managed to be free of any fixed anchors.

Alternative E prescribes that existing fixed anchors that cause social conflicts or intrude upon the wilderness experience would be camouflaged and/or eliminated. It also provides for the new or replacement fixed anchors to be camouflaged to decrease the visual impacts. Management prescriptions would also be developed for the use of chalk to eliminate visual impacts. Some unappealing routes would be eliminated and replaced by others of a higher quality to enhance the visitors' experience.

Fixed anchor free zones would preserve some areas of the park as completely unaffected by the presence of fixed anchors. This would eliminate climbing opportunities that rely upon fixed anchors from a portion of the park. This could detract from some climbers' experience, but would enhance the experience of those seeking solitude.

AUTOMOBILE CAMPING

The term automobile camping in this section refers to the practice of camping near your vehicle by pulling a short distance off the road or parking along the road to camp overnight. Alternative E would restrict auto camping to designated campgrounds and prohibit camping along roads. Impacts associated with camping, such as vegetation disturbance, soil compaction, and park maintenance of campgrounds, would be confined to existing frontcountry designated campgrounds in the developed zone. Use of frontcountry designated campgrounds would prevent disturbances to species of concern.

OVERNIGHT GROUP SIZE LIMITS

The new proposed action would continue to support dispersed camping in the backcountry transition and wilderness subzones of the park. The establishment of group size limits for the backcountry transition and wilderness subzones would protect resources and visitor wilderness experience by limiting the size of groups. The group size in the backcountry transition subzone would be 25; in wilderness, it would be 12. Leave no trace ethics would be promoted. Overnight group size limits in the backcountry could negatively impact large groups, but would enhance the experience of those seeking solitude and a wilderness experience.

AREA CLOSURES

The closure of Keys Ranch, unless accompanied by National Park Service personnel, would protect the cultural resources at the site. The closure of additional specific areas would protect sensitive wildlife nesting, lambing, and watering areas. Area closures for overnight camping would decrease the area where visitors would be allowed to camp in the backcountry by only seven percent.

ARTIFICIAL WATER SOURCES

The new proposed action would provide an in-depth analysis of four artificial water sources to determine if the sources should be maintained or removed. National Park Service biologists, in consultation with other Federal and state agencies, would determine the period of study and analysis. Any decision about artificial water sources would be based upon science. The study would determine if the sources sustain wildlife, meet the standards of the Wilderness Act, and comply with NPS Management Policies. Removal of artificial water sources could reduce the carrying capacity for bighorn sheep, but impacts would be thoroughly reviewed by an in-depth study.

Removal of all artificial water sources would enhance the wilderness experience of those expecting to see no permanent installations in wilderness. If, however, the removal of such artificial water sources had a negative impact on bighorn sheep and other wildlife species, visitors who delight in viewing wildlife would have a diminished experience.

DESERT TORTOISE RECOVERY

Alternative E would implement the approved Desert Tortoise Recovery Plan by designating the natural zone of the park as a Desert Wildlife Management Area and by adopting plan management prescriptions identified for the protection of the desert tortoise, except for fencing.

The desert tortoise is listed as a threatened and endangered species. The greatest potential for visitor-induced impacts to the tortoise would be from motorized, mechanized, and equestrian activities. Vehicles would be restricted to designated roads and parking areas. The maximum speed limit of 45 miles per hour on paved roads and 25 miles per hour on unpaved roads would, by design, keep speeds low. Low speeds allow visitors to be more aware of their surroundings and the presence of desert tortoise on the roads.

Bicycles would be permitted on roads open to vehicle use and designated trails. A public awareness initiative using print media, trail signs, and volunteers would be implemented to increase awareness about the desert tortoise. Horse and mules would be permitted on road shoulders and designated trails and corridors. Restricting travel to designated trails and corridors, coupled with signing and a strong volunteer corps, would provide an increased measure of tortoise awareness and protection.

The park would continue to survey and monitor for the desert tortoise. Information gathering would continue in accordance with directions provided by park resource staff and the Desert Tortoise Management Oversight Group. New information and data would be evaluated to ensure management actions are consistent with the recovery of the desert tortoise.

put Summary of Impacts here

PREPARERS AND CONTRIBUTORS

PREPARERS

Frank Buono, Assistant Superintendent, B.A., Natural Science; graduate studies in Natural Science; 23 years with National Park Service, as environmental protection specialist, chief of resource management, training specialist (Albright Training Center). Prepared in-house review draft, initiated consultation with U.S. Fish and Wildlife Service, drafted the environmental impact statement

Mary Risser, Assistant Superintendent, B.S. Secondary Education; 16 years with National Park Service. Prepared Supplement to the General Management Plan Amendment and Environmental Impact Statement and final document

Keith Kelly, Cottonwood District Ranger, B.S. Parks and Recreation, 14 years National Park Service, resource management and visitor protection Developed trail information

Gary Lindberg, Geographic Information Systems Specialist, B.S. in forest management, 2 years National Park Service, 1 year Bureau of Indian Affairs Prepared all figures and maps

Kathy Dimont, Writer/Editor, Denver Service Center Editing, printing preparation of the original draft

BACKCOUNTRY / WILDERNESS PLANNING TEAM

Jeff Ohlfs, Cottonwood Patrol Ranger

Supplied information on road networks and other attributes of new land

Daral Bowe, Foreman, Roads and Trails

Served on park backcountry/wilderness planning team

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Joe Zarki, Chief of Interpretation and Education

Served on park backcountry/wilderness planning team

Judy Bartzatt, Chief of Visitor and Resource Protection

Served on park backcountry/wilderness planning team

Ernest Quintana, Superintendent

Supervised plan preparation

Pat McClenahan, Chief of Resource Management

Assisted in developing alternatives

Holly Van Houten, Recreation and Trails Planner, Pacific West Regional Office

Developed material for regional trail network

CONSULTATION, COORDINATION, AND PUBLIC COMMENT

SCOPING PROCESS AND ISSUES AND ALTERNATIVES RAISED

Meetings and workshops comprised an integral part of the scoping process. They identified issues, alternatives, and impact topics to be considered in planning and kept the public informed throughout plan formulation. A notice of intent to prepare an environmental impact statement for the amend-ment to the General Management Plan for Joshua Tree National Park and to begin the scoping process was issued in the Federal Register on January 30, 1995.

The first formal public meetings were conducted in November 1995 with scoping meetings near Twentynine Palms and Joshua Tree and in Palm Springs, California to seek input on planning issues from the public. The most commonly issues raised were:

equestrian use

off-road vehicle use

designation of trails systems

group sizes

bicycle use

dispersed camping along roadside

rock climbing and bolting installation

On February 13, 1996, the National Park Service mailed a synopsis of the issues raised during the meetings to all participants in the public scoping meetings. In addition, a group of 19 private citizens known as the conservation of resources task group (CORE) was assembled to provide information on the related planning issues.

During 1996, National Park Service personnel from the Recrea-tion and Trails Office in the Planning and Partner-ships Division of the Pacific West Regional Office held a series of meetings with local officials and users to discuss trail links from external areas to park portals. That infor-mation gathering was part of the scoping process.

CONSULTATION

The National Park Service conducted an in-house review of the draft plan from March 18 to May 17, 1997. The in-house review included the regional and Washington offices of the National Park Service, Death Valley National Park, Mojave National Preserve, the Desert District Office of the Bureau of Land Management, and the three coordinated management planning teams in the California Desert (west Mojave, northern and eastern Colorado desert, and northern and eastern Mojave Desert).

Prior to release of this amendment, the National Park Service requested the review and sug-gestions of the Joshua Tree National Park Advisory Commission.

Congress established the Joshua Tree National Park Advisory Commission in the California Desert Protection Act to advise the National Park Service on the "...development and implementation of a new or revised compre-hensive management plan for Joshua Tree National Park." This amendment constitutes that plan. The draft plan was sent to each member of the advisory commission in September 1997. The first meeting of the advisory commission was held on September 27, 1997. This amendment was the major agenda item of that meeting.

Section 7 of the Endangered Species Act directs all Federal agencies to use their authority to carry out programs for the conservation of endangered or threatened species. Section 7 also requires that Federal agencies consult with the FWS to ensure that any action authorized, funded, or carried out by the agency does not jeopardize the continued existence of the species or of habitat that is designated as critical for that species. Informal consultation with the FWS in Carlsbad, California was initiated on October 2, 1996, with a request for a list of species that may be present in the area affected by the project. A copy of their comment is included in appendix D.

During public review of this draft, the National Park Service provided the draft to the California State Historic Preservation Officer, the California State Clearinghouse, San Bernardino and Riverside Counties, the Coachella Valley area governments, and the towns of Yucca Valley, Twentynine Palms, and Joshua Tree. The draft was also sent to the Agua Caliente Tribal Council, the Augustine Band of Mission Indians, the Cabazon Band of Mission Indians, the Chemehuevi Tribe, the Ft. Mojave Tribe, the Morongo Band, the Santa Rosa Reservation, the Torres-Martinez Desert Cahuilla Indians, and the Twentynine Palms Bank of Mission Indians.

Secretarial Order No. 3173, dated November 8, 1993, regarding Indian Trust Responsibilities, requires that any anticipated

impacts to Indian trust resources from a proposed Federal action be explicitly addressed in environmental documents. The Department of Justice states that specific provisions of treaties, statutes, or executive orders determine the extent of the Federal trust responsibility for Indians. "Moreover, by definition, only real or personal property . . . can be held in trust" for Indian tribes (memorandum to Office of Management and Budget of May 21, 1993 from Assistant Attorney General of the United States). Trust resources include Indian trust lands, either tribally or individually held, water reserved for Indian reservations, or statutory or treaty-granted hunting or fishing rights. During the planning process, the National Park Service determined that there are no Indian trust lands, water rights, or hunting or fishing rights inside the boundaries of Joshua Tree National Park. No decisions made through this plan would affect any Indian trust resources that are on or near the border of the park.

INITIAL PUBLIC REVIEW AND COMMENT

On November 3, 1997, the National Park Service issued a regional and local press release that announced that the public comment period for the Draft GMPA/EIS began and would extend through January 31, 1998. A notice of availability was published in the Federal Register on November 21, 1997. In addition to the press releases that were sent to the media, the National Park Service mailed more than 260 press releases announcing the availability of the draft plan for public review and comment to agencies, organizations, and individuals. More than 370 copies of the draft plan and accompanying copies of the press release were mailed to interested parties. The draft plan was also posted on the Internet.

Three public workshops were conducted to provide park staff the opportunity to hear the concerns and suggestions of the public. The workshops were conducted in Beverly Hills on December 2, 1997, in Palm Desert on December 11, 1997, and in the village of Joshua Tree on January 16, 1998. The park estimates that approximately 35 people attended the Beverly Hills workshop; 30 people attended the Palm Desert workshop; and 200 people attended the workshop in Joshua Tree. Regional and local press releases were issued prior to each workshop.

Because of the interest in the plan, the park extended the public review and comment period from January 31 through February 28, 1998. A notice of the extension of the public review and comment period was published in the Federal Register on January 26, 1998.

The NPS received 1,122 written comments about the draft plan. Just over 900 comments were primarily concerned with the climbing section of the plan; some also addressed other issues. More than 100 comments were directed toward the artificial water sources section of the plan and expressed concern for the bighorn sheep. Fifty-eight responses were related to equestrian issues; 10 were about llamas; and the remaining addressed a variety or combination of other issues or the entire plan. In addition to the public comments, the Joshua Tree National Park Advisory Commission met several times to discuss the Draft General Management Plan Amendment and Supplemental Environmental Impact Statement.

Development of a Supplement to the Draft General Management Plan Amendment and Supplemental Environmental Impact Statement

After the lengthy public review and comment process, thorough review of the comments and consideration of the Joshua Tree National Park Advisory Commission's input, the National Park Service determined that changes to the draft proposed action warranted issuing a supplement to the Draft General Management Plan Amendment and Supplemental Environmental Impact Statement. The Supplement presented Alternative E - the New Preferred Alternative to the public.

The Supplement (Alternative E) contained:

- an update on the planning process and public involvement including further description of some of the reasons for preparation of this Supplement and what steps to expect in the future
- a discussion of the new alternative, which constitutes the National Park Service's new proposed action
- a discussion of the environmental consequences of implementing the new alternative
- summary tables comparing the actions and consequences of the five alternatives

A synopsis of the changes that were incorporated in the Supplement (Alternative E) as the result of public comments and the input of the Advisory Commission follows.

- The Supplement (Alternative E) did not distinguish between wilderness experience classes A and B. Wilderness use and experience levels would be managed equally throughout the park.
- The equestrian trails would be increased by 3.15 miles from Alternative A and would be included in the designated trail system in the Supplement (Alternative E). Another 1.2 miles would be considered after resource and maintenance evaluations were completed. An option would exist, at the discretion of the superintendent, to study the use of llamas in the park with the protection of resources and consistency with the National Park Service mission being the priority. Remote areas, where parking at a backcountry self-registration board would not be required, would include Pinto

Basin and the Coxcomb, Pinto, Eagle, Little San Bernardino, and Cottonwood mountains. No new trail requests would be considered until the designated trails were inventoried, developed, and monitored for several years. Trails not designated as part of the trail system would be restored to a natural condition. A reroute of .67 miles would move the .5-mile section of the Berdoo/Thermal Canyon bicycle trail that currently lies in wilderness to the backcountry transition subzone.

- An additional .8 miles (Snow Cloud Mine spur) of unpaved roads would be designated as part of the developed zone. All roads not designated as open would be closed to vehicle access and would be reclaimed as part of the natural zone. A parking area would be established at the southern base of Berdoo/Thermal Canyon bicycle trail to provide a staging point for loading/off-loading bicycles.
- The Climbing Committee would function as a subcommittee of the Joshua Tree National Park Advisory Commission and would be chaired by a commissioner and comprised of representatives of the climbing community, conservation organizations, and other individuals. Replacement of existing fixed anchors would be allowed throughout the park. Replacement and new fixed anchors should be with neutral or rock-colored hangers and chains. Replacement of existing fixed anchors should be accomplished in a manner that removes the old fixed anchor with minimum damage to the rock resource. The Supplement (Alternative E) would allow for the use of power drills with a permit in the developed zone and backcountry transition subzone. Placement of fixed anchors in the developed zone and backcountry transition subzone would not require a permit, but a monitored process would be established to provide guidance and management oversight. The monitored process would be developed with the assistance of the Climbing Committee. The Supplement (Alternative E) would provide a cap on the number of new climbing routes with fixed anchors per year. A park-wide survey of existing routes with fixed anchors would assess impacts to resources and visitor experiences. Management prescriptions would consist of relocation of specific fixed anchors and approach and descent routes, and/or permanent or temporary closures. Fixed anchors in wilderness found to impact resources or visitor wilderness experience would be camouflaged or removed. Placement of any new fixed anchors in wilderness should require prior approval in the form of a permit by the Superintendent, and any climbing impacts in wilderness should not exceed 1998 levels. The Supplement (Alternative E) would establish fixed anchor free zones in the park.
- No automobile camping would be allowed on land added to the park in 1994, but the National Park Service would have the option to study placing a primitive camp in the backcountry transition subzone of the Little San Bernardino Mountains.
- The Pine City guzzler would be added to the list of artificial water sources to be studied. The Supplement (Alternative E) would leave the determination of the period of the study and implementation to National Park Service biologists in consultation with other federal and state agencies. Maintenance of the guzzlers could continue during the study period.
- The elimination of the wilderness experience classes would require a designation of a single group size limit for overnight use throughout the wilderness subzone. The overnight group size limit would be12 throughout wilderness subzone and 25 in the backcountry transition subzone.
- The Supplement would not change recommendations for Area Closures and the Desert Tortoise found in Alternative A, the Proposed Action, in the Draft General Management Plan Amendment and Supplemental Environmental Impact Statement.

Second Public Review and Comment Period

On November 2, 1998, the National Park Service issued a regional and local press release that announced that the public comment period for the Supplement to the Draft General Management Plan Amendment and Supplemental Environmental Impact Statement began and would extend through December 31, 1998. A notice of availability was published in the Federal Register on November 3, 1998. Because of the busy holiday season and the interest expressed in the Supplement, the National Park Service extended the public comment period until January 20, 1999. A notice of the extension was also published in the Federal Register.

In addition to the press releases published by the media, the park mailed more than 280 copies of the press release announcing the availability of the draft plan for public review and comment to agencies, organizations, and individuals. Approximately 450 copies of the Supplement (Alternative E) and accompanying press releases were mailed to interested parties. The Supplement (Alternative E) was also posted on the Internet.

The National Park Service received 183 written comments that addressed the new proposed action. As with the Draft General Management Plan Amendment and Supplemental Environmental Impact Statement, the majority of the comments addressed climbing management and expressed support for the new alternative. Responses to comments are contained in appendix D.

AGENCIES AND ORGANIZATIONS

To Whom Copies Of The Press Release And/or Draft Document Have Been Sent

Joshua Tree National Park Advisory Commission

Mr. Chuck Bell

Ms. Cyndie Bransford

Mr. Richard Russell

Mr. Gary Daigneault

Mr. Brian Huse

Mr. Roger Melanson

Ms. Leslie Mouriquand

Mr. Gilbert Zimmerman

Mr. Julian McIntyre

Ms. Diane Benson

Mr. Michael McCormack

Dr. Byron Walls

Supervisor Roy Wilson

Supervisor Kathy Davis

Federal Agencies and Elected Officials

Senator Barbara Boxer

Representative Mary Bono

Representative Ken Calvert

Senator Dianne Fienstein

Representative Jerry Lewis

Department of Defense, U.S. Marine Corps, Twentynine Palms (2 addresses)

Department of the Interior

Bureau of Land Management, California Desert District (3 addresses)

Fish and Wildlife Service

National Park Service:

Death Valley National Park

Great Basin National Park

Lake Mead National Recreation Area

Mojave National Preserve

Pacific West Region

Washington Office

Department of Justice, U.S. Attorney's Office

Environmental Protection Agency

State Agencies and Elected Officials

California Department of Fish and Game (3 different offices)

California Department of Forestry

California Department of Parks and Recreation
California Desert District
California Highway Patrol
California Historic Preservation Officer
California Native American Heritage Commission
California Office of the Governor
Mt. San Jacinto State Park
Representative Fred Aguiar
Senator Ruben Ayala
Representative Joe Baca
Representative Jim Battin
Representative Jim Brulte
Senator William Craven
Senator Ray Haynes
Representative Ted Weggeland
Salton Sea State Park
Local Agencies
Chiriaco Center
City of Cathedral City
City of Coachella
City of Desert Hot Springs
City of Indian Wells
City of Indio
City of La Quinta
City of Palm Desert
City of Palm Springs
City of Rancho Mirage
City of Salton Sea
City of Twentynine Palms
Inland Empire Economic Partnership
Riverside County
San Bernadino County
Town of Desert Center
Town of Yucca Valley
Lake Tamerisk
Native Amercian Consultation
Agua Caliente Tribal Council
Augustine Band of Mission Indians
Cabazon Band of Mission Indians
Chemehuevi Tribe

Ft. Mojave Tribe
Morongo Band
Santa Rosa Reservation
Torres-Martinez Desert Cahuilla Indians (2 addresses)
Twentynine Palms Band of Mission Indians
Organizations
Access Fund (3 addresses)
American Search and Rescue Institute
Audubon Society
Bighorn Sheep Society
California Desert Protection League
California Native Plant Society (2 addresses)
Climbing Magazine
Coachella Valley Mountain Conservancy
Chamber of Commerce of Coachella
Chamber of Commerce of Indio
Chamber of Commerce of Joshua Tree
Chamber of Commerce of Morongo Valley
Chamber of Commerce of Palm Desert
Chamber of Commerce of Palm Springs
Chamber of Commerce of Twentynine Palms
Chamber of Commerce of Yucca Valley
Desert Protective Council
Desert Tortoise Council
Friends of Joshua Tree
Hi Desert Museum
Institute for Policy Research
Living Desert Museum
Metropolitan Water District
Morongo Basin Conservation Association
Mountain Tools
National Parks and Conservation Association
Nature Conservancy (2 addresses)
Offroad Vehicle Association
Ojai and Ventura Voice
Pacific Crest Outward Bound School
Palm Springs Desert Museum
Rock and Ice
Sierra Club (8 addresses)
Sierra Institute

Society for the Conservation of Bighorn Sheep (3 addresses)

Southern Sierra Climbers' Association

The Wildlands Conservancy

Twentynine Palms Historical Society

Vertical Hold Sport Climbing Center

Wheelchair Activity Group

Wilderness Society

APPENDIX A: TRAIL SYSTEM

Mileage is for specific trails only, which often is measured from one trail intersection to another. Trails are listed as strenuous (S) moderately strenuous (MS), moderate (M), and easy (E).

NATURE TRAILS

High View - 1.3 mile loop (M)

Starting point - Black Rock Canyon Campground. This is a well maintained, moderately steep trail leading to a good viewpoint of Yucca Valley and Mt. San Gorgonio. A handout may be available at the Black Rock Nature Center that provides information on the high desert environment.

Hidden Valley - 1 mile loop (E)

Starting point - Hidden Valley picnic area. This is a well maintained easy trail takes you into a rock-enclosed valley rumored to have been used by cattle rustlers in the late 1800's.

Barker Dam - 1.1 mile loop (E)

Starting point - Barker Dam parking area. This is a well maintained easy trail to a dam and lake built by early cattle ranchers. The trail leads past Native American petroglyphs.

Cap Rock - 0.4 mile loop (E)

Starting point - Cap Rock parking area. This is an easy, paved, wheelchair accessible trail that circles through boulder formations showing the geology and plants of the Mojave Desert. The area is named for the large rock perched like a cap on the largest rock formation.

Keys View Loop - 0.25 mile loop (E)

Starting point - Keys View road. This short paved trail ascends to a viewpoint of the Coachella Valley, Mt. San Jacinto, Mt. San Gorgonio, and the Salton Sea.

Skull Rock - 1.7 mile loop (E)

Starting point - Jumbo Rocks Campground near loop E. Interpretive signs guide visitors through boulder piles, desert washes, and a rock alleyway to the rock formation known as Skull Rock.

Indian Cove - 0.6 mile loop (E)

Starting point - west end of Indian Cove Campground. The trail skirts the edge of the boulders at the northern edge of the Wonderland of Rocks. Signs along the way interpret the plants and animals of the Mojave Desert and early human life in the area.

Oasis of Mara - 0.5 mile loop (E)

Starting point - Oasis Visitor Center. Once a popular gathering place for Native Americans, this paved, wheelchair accessible trail provides a good introduction to an oasis habitat.

Arch Rock - 0.3 mile loop (E)

Starting point - White Tank Campground, opposite site 9. Signs along this trail interpret the geology of the area and the formation of a natural arch.

Cholla Cactus Garden - 0.25 mile loop (E)

Starting point - Pinto Basin Road 20 miles north of Cottonwood. This trail meanders through a dense concentration of Bigelow Cholla in the lower edge of the transition zone between the Mojave and Colorado Deserts.

Cottonwood Spring - 1 mile loop (E)

Starting point - Cottonwood Spring parking area. Signs interpret the plants and animals of the Colorado Desert as it winds through rolling hills.

Botanical Walk - 0.2 mile loop (E)

Starting point - Cottonwood Visitor Center. This short trail loops through typical Colorado Desert vegetation, with signs identifying the plants.

Bajada All-access - .25 mile (E)

Starting point - South entrance to the park. This accessible mile loop has hardened trail tread and interprets the natural features.

HIKING AND EQUESTRIAN TRAILS AND CORRIDORS

California Riding and Hiking Trail (CRHT) - 37 miles one way (E-MS)

The trail passes through a wide range of park vegetation, including pinyon/juniper forests, Joshua tree forests and creosote-dominated lowlands. Access can be gained in numerous locations including, Black Rock Campground, Covington Flats, Ryan Campground, Twin Tanks backcountry board, and near north entrance. There is a spur of the trail at mile 28 leading to the Covington Flats parking area (2 miles) and another spur at mile 35.6 leads to Black Rock Camp (1.5 miles). The 7-mile section from north entrance to Pinto Basin Road is also designated as a bike trail.

Boy Scout Trail - 8 miles one-way (M)

Access can be gained at the Indian Cove backcountry board or the Keys west backcountry board. This trail provides a variety of terrain and views as it travels through picturesque washes along the edge of the Wonderland of Rocks. It is lined with juniper, pinyon and oak trees then follows a rocky hillside and continues through steep mountains and narrow canyons. The east side of the trail and the open desert near Indian Cove is for day use only.

BLACK ROCK VICINITY

Long Canyon/Chuckawalla Bill Corridor - 8.5 miles one-way (MS)

Long Canyon runs from near the northwest boundary of the park due south to the park's south boundary near Desert Hot Springs, winding down through high mountains. About halfway along the main canyon, a side canyon leads to Chuckawalla Bill ruins.

Little Long Canyon Corridor - 1.2 miles one way (E)

This is a small wash west of Black Rock and east of the more extensive Long Canyon. The corridor ends at a knoll at 4,560 feet elevation that provides a limited view of Warren Peak and the surrounding hills. A more open view is available along the way and there is prolific vegetation. The corridor also includes a 0.2 mile spur that follows an old unused road that leads west to an overlook toward Morongo Valley.

West Side Loop Trail - 5.1 mile loop (MS)

This trail begins and ends at Black Rock Campground. It is interesting for its geology and vegetation and creates a feel for the wilderness area where it is located. It contains a pretty, narrow ravine.

Black Rock Canyon with Panorama Loop/Morongo View - 6.2/5.3 miles (MS/M)

This trail begins and ends at the Black Rock Campground. This is a pretty canyon with multiple viewpoints on top with outstanding panoramic views of Coachella Valley, including the Salton Sea and the Black Rock vicinity.

Short Loop Trail/via Fault - 4.9/4.3 mile loop (M)

This very popular trail through oaks, pinyons, and junipers, is nice but short. It begins and ends at the Black Rock Campground. The Fault trail leads past a rupture from the 1992 Landers earthquake where crevices are still visible.

Burnt Hill Trail - 2.8 miles one way (E)

Starting at the Black Rock Canyon Trail 0.8 mile from Black Rock Campground, this trail ends at Eureka Canyon Trail. The hill in the middle of the valley burned sometime in the 1970s. A good wildflower display can sometimes be seen in the spring.

Canyon View Trail - 1.6 miles one way (MS)

This trail connects the Short Loop Trail with the Eureka Peak Trail, running parallel with the Eureka Peak Trail within about 0.25 mile to the west. It is a beautiful trail offering fine vegetation and good views of the local canyon system.

Cliff Trail - 1.7 miles one way (MS)

This trail connects the California Riding and Hiking Trail near mile 35 with the Eureka Peak Trail. It was named for its proximity to the abrupt top edge of Eureka Canyon near its deepest spot, at which point one can walk over and look down. The new proposed action adds .5 miles that take the rider out of the wash into the piñons, junipers, oaks, and nolina to offer view of the canyon system.

Eureka Peak Trail - 5.2 miles one way (S)

The trail begins at the California Riding and Hiking Trail mile 35.6. Excellent views are available from the 5518-foot peak. The trail passes through a narrow canyon and pine forest. The view includes Mt. San Gorgonio, the Coachella Valley, and an incredible view of Mt. San Jacinto towering above the Coachella Valley. The trail continues beyond Eureka Peak and joins the California Riding and Hiking Trail at mile 32.2.

Boundary Trails E and W - 2.5 miles one way (E)

These trails follow the park's north boundary linking Black Rock with other trails. The west trail connects the West Side Loop Trail with Long Canyon Corridor. The east trail connects Black Rock Camp with the newly designated California Riding and Hiking Trail south of La Contenta Road.

Deerhorn Trail - 2.65 miles one way (M)

Accessible from mile 31.9 and 32.94 of the California Riding and Hiking Trail, this trail is one of the favorites of the local horse users. It provides sweeping views and a variety of vegetation, and deer are frequently sighted.

Covington Loop Trail - 3.95 miles (E)

This trail intersects at Deerhorn Trail in Upper Covington Flats and proceeds through Lower Covington. It passes through an area burned over during the lightening-caused Covington Fire of 1995.

Covington Crest Trail - 1.7 miles one way (MS)

This trail begins at the California Riding and Hiking Trail mile 29.5 and heads south to an overlook of the Coachella Valley at 5,022 feet.

Bigfoot Trail - 12.7 miles one way (E-S)

This trail begins near Eureka Peak and heads east through Lower Covington and on toward west entrance and terminates at Samuelson Rock and the cabin site. Much of this trail is within the burn area of the 1995 Covington fire. It links the Black Rock vicinity trails with the west entrance vicinity trails. Difficulty depends on section and direction of travel.

Bigfoot Spur - 0.7 mile one way (M)

This spur trail connects the Eureka Canyon Trail with the Bigfoot Trail. It is popular for those wishing to head east to Lower Covington Flats and not proceed to Eureka Peak.

Nolina Cove Spur - 0.25 miles (E)

This spur leaves Bigfoot Trail to connect with roads in the Whispering Pines development.

WEST ENTRANCE VICINITY

West Access Trail - 1.7 miles (E)

Provides direct access to the Burro Loop on the north side of Park Boulevard as well as the connector to Bigfoot on the south side.

North Side Access - .7 miles one way (E)

Joins the west access trail with the North Side Trail somewhat parallel and north of park route 12 running east to west.

Cactus Cove View - .2 miles

Provides access from Joshua Highlands to the park and offers a 360 degree panorama view from the ridge at the park boundary.

Quail Springs Historic Trail and Wash - 7.8 miles one way (E)

This trail begins at Quail Springs Wash near the park's north boundary or at the Quail Springs Picnic area or Keys west backcountry board. This road/trail travels across an open valley dotted with Joshua trees and then joins and follows the wash to the north boundary.

Mary Trail - 1 mile one way (E)

A parallel alternative to the sandy Quail Wash, this trail leaves the wash near the park's boundary and is named for the survey monument located between the wash and trail.

Johnny Lang Canyon Corridor - 3.2 miles one way (MS)

This trail begins at the Quail Springs historic route southeast of Samuelson rock and the cabin site, and the corridor ends at the end of the canyon where the Ryan Mountain connector trail begins. The canyon provides quiet beauty and variety of terrain, vegetation, and views. Pinyon pines grow in the rugged, rocky valley in the upper canyon.

Johnny Lang Connector Trail - 1.8 miles one way (M)

This trail connects Johnny Lang Canyon with the old Lost Horse Road just south-west of Quail Springs picnic area.

Samuelson West Trail - 1.8 miles one way (E)

This trail begins at Quail Wash about 1 mile south of north boundary and ends either at the Bigfoot trail 0.4 miles north

of Samuelson Rock or 0.75 mile from Samuelson if taking the northern spur. A 0.3-mile spur in the middle of this trail leads to a large hunk of multicolored quartz.

Panorama Trail - 3.3 miles one way (MS)

The new proposed action includes a reroute of the bottom of the trail. This trail begins at Quail Wash near the north boundary and ends at the Bigfoot trail 0.75 mile south of the south side connector trail. The trail offers extensive panoramic views.

South Side Connector - 0.5 mile one way (E)

This trail connects the Window/Maze Loop Trail just east of the borrow pit staging area to the Bigfoot Trail south of Route 12. The connection leads to all trails south of route 12 to the west and east.

North Side Trail - 1.8 miles one way (E)

Accessed via the borrow pit, this trail leads to the Burro Trail to the north.

North and South Side Connector - 1.1 mile one way (E)

This trail links the North Side Trail with the Bigfoot Trail near the west entrance, crossing over park Route 12.

Burro/Rocky View Loop Trail - 3.5/1.2 miles (M/MS)

There are two access points for these trails. One is by way of North Side Trail from the borrow pit and the other via BLM land near Panorama Heights. Access through the BLM land adds 0.5 mile of trail inside the park. This area is rugged and beautiful; the trail follows routes through canyons and across ravines. Rocky View follows a rugged course with a wide variety of terrain and rock formations.

Maze/Window Loop Trails - 4.85/5.7 miles (MS)

This trail begins and ends at the borrow pit. The loops offer numerous rock formations, several vistas, and a sense of wilderness. The trail wanders through rock formations and around a hole on the top of a mountain that the trail circumnavigates. Bypassing the Window Loop shortens the trip by nearly a mile.

North View Trail - 3.25 miles one way (MS)

This favorite trail of local equestrians begins at the borrow pit and ends on the Maze Loop. Many viewpoints are outstanding.

Big Pine Trail - 3 miles one way (E)

This trail starts from the North View Trail 0.25 mile north of the Maze Loop and travels east to the Boy Scout Trail with a 0.6-mile one way spur to the Big Pine.

RYAN/LOST HORSE/TO NORTH ENTRANCE

Lost Horse Loop - 8.4 miles from parking lot/12.6 from Ryan Campground (MS)

This trip includes Lost Horse Mine and Lost Horse Mountain over a high ridge to a remote valley where Joshua trees and pinyon pines are common. By not completing the loop and backtracking to the parking lot, the mine trip is a moderate 4 miles long. By not completing the loop and backtracking to Ryan Campground the mine trip is 9.9 easy miles.

Squaw Tank Trail - 4.2 miles one way (M)

This trail links the California Riding and Hiking Trail near mile 15.2 with the Geology Tour Road at Squaw Tank. The trail passes through some impressive geological formations, including Malapi Hill.

Ryan/Johnny Lang Connector Trail - 4.6 miles one way (MS)

This trail connects the Johnny Lang canyon corridor with the California Riding and Hiking Trail near mile 20.

Stubbe Springs Loop - 6.5 miles (M)

Beginning at the California Riding and Hiking Trail at mile 20, this trail initially follows about 1 mile of the old Juniper Flats Road then heads south and west to near Stubbe Springs. From the Stubbe Springs wash it travels north to cross over the old Juniper Flats Road and rejoin the California Riding and Hiking Trail at about mile 22.5.

Cap Rock Trail - 3 miles one way (E)

This trail begins at Ryan Campground and joins the California Riding and Hiking Trail near mile 19. It provides an easy loop from the campground with a variety of scenery.

Old Lost Horse Road Trail - 5 miles one way (E)

This trail begins at Ryan Campground and travels through Lost Horse Valley to the Quail Springs Historic Trail.

Old Queen Valley Historic Road Trail - 6 miles one way (E)

This trail connects the Pine City backcountry board with the Wall Street Mill area via an old road north of Negro Hill and continues on to Echo "T" intersection. A 1-mile section of this trail near Wall Street Mill is also part of the Ryan Mountain Loop Trail.

Ruins/Lost Horse Well Road/Trail - 1 mile loop (E)

This road/trail is adjacent to the Ryan Campground. The ruins can be seen easily from the campground, and the route follows old roads that are closed to vehicles.

Ryan Mountain Trail - 3 miles round trip (MS)

This route begins at Ryan Mountain parking area and provides outstanding 360º panoramic views from the 5,461-foot peak. No horses are permitted on this trail.

Ryan Mountain Loop Trail - 9.75 mile loop (M)

This trail begins at the Ryan Mountain Campground and completely encircles Ryan Mountain and joins the California Riding and Hiking Trail near mile 14.2. It provides a nice view of the Lost Horse Valley.

Lost Horse Valley Trail - 2.5 miles one way (E)

This trail begins at Ryan Campground and travels through Lost Horse Valley due north to the Echo "T" intersection.

Pine City Trail - 3 miles round trip (E)

This trail starts at the Pine City backcountry board. This island of desert greenery contains large pine trees among an isolated collection of rocky walls and boulder mounds. This is a good place for viewing bighorn sheep and birds.

Lucky Boy Vista/Queen Mine Loop Trail - 6.8 miles round trip (MS)

Visitors use the Pine City backcountry board location for overnight use or begin at the Lucky Boy Junction for day use. The trail goes to a high, level plateau that provides excellent views. Points of interest include Elton Mine, Desert Queen Mine, Eagle Cliff and the Lucky Boy Vista.

Contact Mine Trail - 3.4 miles round trip (MS)

The trail begins and ends at the north entrance exhibit. The mine produced gold and silver in the early 1900s. Building ruins, old machinery, tram tracks, a cable winch, and partially collapsed shafts are still visible.

North Entrance Access Tail - 0.5 mile one way (E)

This trail provides access from BLM section 14 in Gold to the California Riding and Hiking Trail mile 0.5 near the north entrance.

Wall Street Mill Trail - 1.5 miles round trip (E)

This trail begins at Wonderland Ranch parking area. The mill was used by Bill Keys to process ore from the Desert Queen Mine and is in a pretty area on the southern edge of the Wonderland. There is a stone marker along the way that reads, "Here is Where Worth Bagly Bit the dust At the Hand of W.F. KEYS, May 11, 1943."

Face Rock Spur -.15 miles

Spur trail leads to an amazingly life-like Face Rock and nearby historic stock water trough.

WONDERLAND OF ROCKS (Pedestrian Trails Only)

Fortynine Palms Oasis Trail - 3 miles round trip (MS)

One of five palm oases in the park, Fortynine Palms holds over 50 native fan palms in this rocky canyon. There are pools of water and large polished boulders as well as evidence of past wildfires.

Willow Hole Trail - 7 miles round trip (E)

Starting at the Keys west backcountry board, the trail begins in open desert then follows a narrowing wash through tall boulder piles. Near Willow Hole big willow trees and rocky walls surround large pools of water. This trail is part of the Wonderland Connection Trail.

AREAS EAST AND COTTONWOOD VICINITY

Pushawalla Canyon Corridor - 12 miles one way (MS)

This corridor runs from the Pinyon Well parking area to the south boundary accessible from Dillon Road. The corridor includes a good variety of vegetation and scenic views and lies in an area that is seldom visited.

Fried Liver Wash Corridor - 14 miles one way (E)

Access is at either the Pleasant Valley backcountry board or Pinto Basin Road. This corridor follows a wide sandy wash that winds its way from the Mojave Desert through the transition zone and into the Colorado Desert. During good years for wildflowers, this wash provides a colorful spring display.

Hexahedron Mine Trail - 8 miles round trip (MS)

This trail begins at the Pleasant Valley backcountry board and follows the Fried Liver Wash corridor for the first 2.5 miles. It then turns north into the Hexie Mountains to the mine. The hike up the mountain provides a variety of panoramic views. While the mine itself is of little interest, a nearby roofless rock house is interesting.

Big Wash Corridor - 16 miles one way (E)

This corridor links the Black Eagle Mine Road in the Pinto Basin with the Eagle Mountain Road east of the Eagle Mountains. This old road/trail passes through the heart of the Eagle Mountains in the bottom of a large sandy wash.

Mastodon Peak Loop Trail - 3 miles (M)

This trail begins at the Cottonwood Springs Oasis. The peak provides excellent views of the Cottonwood area, Eagle Peak, Monument Mountain, Mt. San Jacinto, Shavers Valley, and the Salton Sea. The trail passes by the Mastodon mine and the Winona Mill where gold was mined between 1919 and 1932. The Winona Mill was an active homestead in the 1920s. No stock are permitted on this trail

Lost Palms Oasis Trail - 7.5 miles round trip (M)

This trail begins at the Cottonwood Springs Oasis. Lost Palms is one of the largest palm oases in the park and has over 100 palm trees. The trail to the oasis overlook meanders through sandy washes and rolling hills. The overlook is at the end of the moderate portion of trail. A strenuous trail leads down into the canyon and running water at the oasis. No stock are permitted on this trail.

BICYCLE TRAILS

The following trails are for use by bicyclists as well as hikers and equestrians as noted.

California Riding and Hiking Trail - 7-mile section between north entrance and Pinto Basin Road. (M)

This section of the California Riding and Hiking Trail travels through a sandy wash most of the way. Traveling from the Pinto Basin Road to the north entrance backcountry board provides a downhill trip and a somewhat easier hike through the sand.

Old Queen Valley Historic Road Trail - 4.75 miles one way (E)

This trail connects the Pine City backcountry board with the Wall Street Mill parking area via an old road north of Negro Hill.

Lost Horse Valley Trail - 2.5 miles one way (E)

This trail connects Ryan Campground with the Echo “T” intersection.

Old Lost Horse Road Trail - 5 miles one way (E)

This road/trail begins at Ryan Campground and travels through Lost Horse Valley to the Quail Springs Historic Trail. The General Management Plan proposed that this road be closed to vehicle traffic and revegetated. The road is closed to public motor vehicle use, but this plan would redesignated it as a bicycle trail, so it would only be partially revegetated.

Berdoo/Thermal Canyon Bike Trail - 10 miles one way (S)

The trail begins at the Berdoo Canyon 4-wheel drive road off of the Geology Tour Road. This rigorous trail follows an old closed road through a very scenic and rugged portion of the Cottonwood Mountains with some very nice overlooks. Overnight camping is available to visitors who register at the Pleasant Valley backcountry board. Riding from this backcountry board adds five miles to the one-way total. The trail exits the park’s south boundary at Thermal Canyon near I-10. Horses are not permitted on this trail.

COST ESTIMATES FOR TRAIL DEVELOPMENT AND REHABILITATION

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